BMP Pilot Studies

Quarterly Status Report No. 6

BMP Pilot Projects in District 7 and District 11

CTSW-RT-99-086 September 15, 1999

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INTRODUCTION

Background and Purpose

Periodic status reports and meetings are specified in the District 7 and District 11 Scoping Study as a vehicle to update NRDC, EPA, San Diego Baykeeper, and Santa Monica Baykeeper on the progress of the BMP Retrofit Pilot Program and receive input as to appropriate changes or modifications to the program. The bi-weekly and quarterly status meetings have been scheduled on a regular basis to coincide with general project milestones and periods of significant activity. Approximate scheduled dates for the periodic status meetings are given in the Scoping Study. This report provides background documentation for the sixth status meeting to be held on September 30, 1999.

The scope of the status reports includes a general program-level overview of the activities that precede the status meetings. Status reports include information regarding the Pilot Program 1) remaining construction, 2) OMM acitivities and preparation for the upcoming sampling, 3) vector and biological issues, and 4) other issues pertaining to the pilot study. The program Master Schedule is contained in the Scoping Study for each District.

The preceding Status Meeting (No. 5) was held on June 29, 1999. The main issues discussed at Status Meeting No. 5 include the following:

- Design/Construction status for remaining sites in District 7
- Remaining Construction in District 11
- Water Quality Monitoring Winter 1998 to 1999 Summary and Experiences
- Conditions of the Biofilter Sites
- Vector Activities
- Biological Monitoring
- Non-stormwater Discharges
- Other Specific Device Issues

QUARTERLY STATUS REPORT SUMMARY

Location	BMP Type	Site ID	OMM Consultant	Clearance Phase	Construction Phase	Instrumentation Phase	Monitoring Phase
DISTRICT 7							
I-605/SR-91	IB	73101	MW/Law				X
I-210 E. of Orcas	CDS	73102	MW/Law	X			
I-210 E. of Filmore	CDS	73103	MW/Law	X			
I-5/I-605	EDB	74101	BC				X
I-605/SR-91	EDB	74102	BC				X
Paxton Park & Ride	MF	74103	BC	X			
Metro MS	MCTT	74104	BC	X			
Alameda MS	OWS	74201	BC				X
Eastern MS	MF	74202	BC				X
Foothill MS	MF	74203	BC				X
Termination Park&Ride	MF	74204	BC				X
Via Verde Park&Ride	MCTT	74206	BC				X
Lakewood Park&Ride	MCTT	74208	BC				X
Altadena MS	Bio Strip/IT	73211a,b	MW/Law				X
Foothill MS	DII	73216	MW/Law				X
LasFlores MS	DII	73217	MW/Law				X
Rosemead MS	DII	73218	MW/Law				X
I-605/SR-91	Bio Strip/Swale	73222a,b	MW/Law				X
Cerritos MS	BioSwale	73223	MW/Law				X
I-5/I-605	BioSwale	73224	MW/Law				X
I-605/ Del Amo	BioSwale	73225	MW/Law				X
DISTRICT 11							
I-5/SR-56	EDB	111101	KLI				X
I-15/SR-78	EDB	111102	KLI				X
I-5/La Costa (West)	IB	111103	KLI	Suspended			
I-5/La Costa (East)	WB	111104	KLI				X
I-5/Manchester (East)	EDB	111105	KLI				X
Kearney Mesa MS	MF(StormFilter)	112201	KLI				X
Escondido MS	MF	112202	KLI				X
La Costa Park & Ride	MF	112203	KLI				X
SR-78/I-5 Park&Ride	MF	112204	KLI				X
Melrose Ave/SR-78	Bio Swale	112205	KLI				X
I-5 Palomar Airport Rd	Bio Strip	112206	KLI				X
Carlsbad MS	Bio Strip/IT	112207a,b	KLI				X

NON-STORMWATER RUNOFF INSPECTIONS

Weekly inspections have been performed at the sites where non-stormwater runoff was previously noted. The following table summarizes when non-stormwater runoff were noted at the sites inspected.

Week of	Brown and Caldwell Sites – D7				Law Crandall Sites – D7						KLI Sites – D11						
	Foothill MS: SF	Alameda MS: OWS	5/605 EDB	Via Verde: MCTT	Foothill MS: DIIs	Foothill MS: SF	Las Flores MS: DIIs	Rosemead MS: DIIs	605/91: IB	Altadena MS: Strip/IT	15/78 EDB	Escondido MS: SF II	5/78 P&R: MF	5/56 EDB	Kearny Mesa MF	Palomar Bioswale	Carlsbad MS
July 12	N	-	-	-	N	N	N	N	N	Y	-	-	-	-	-	-	-
July 19	N	-	-	-	N	N	N	N	Y	Y	-	-	-	-	-	-	-
July 26	N	-	-	-	N	N	N	N	Y	Y	-	-	-	-	-	-	-
Aug 2	Y	-	-	-	Y	Y	N	N	N	N	N	N	Y	Y	N	-	-
Aug 9	N	Y	Y	Y	N	N	N	N	N	Y	Y	N	Y	Y	N	-	-
Aug 16	N	N	Y	N	N	N	-	-	Y	Y	Y	N	N	Y	N	Y	-
Aug 23	N	N	Y	N	Y	Y	-	-	N	N	N	N	N	Y	N	Y	-
Aug 30	-	N	N	N	N	Y	-	-	N	Y	N	-	N	Y	N	Y	N
Sept 6	N	N	Y	N	N	Y	-	-	N	Y	N	Y	N	Y	-	Y	N
Sept 13	o	o	o	o	N	N	-	-	N	N	o	o	o	o	o	o	O

Note:

. N – No Evidence of Non-Stormwater Runoff Discharged into BMP
Y – Non-Stormwater Runoff was Observed
- - No Inspection was held during the week.
o – Has not been conducted at the time of this report preparation.

ACTIVITY DESCRIBED IN THIS REPORT COVERS THE PERIOD FROM MID-JUNE TO MID-SEPTEMBER, 1999.

District 7 BMP Pilot Sites

I-605/SR-91 Interchange Infiltration Basin (Site ID 73101) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phone was connected.

August 17: American Sigma and Caltrans accompanied Law Crandall to site to verify equipment was installed properly and that calibration procedures were acceptable. No problems were noted.

Bubbler calibration is scheduled to be completed by September 24.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

July 14: Monthly site inspection was conducted and potential landscaper contractors did a site walk.

July 27: Law Crandall, Caltrans and Montgomery Watson toured the site to verify that tributary drain inlets were stenciled.

July 29: Law Crandall toured the site with vector control specialist and wildlife consultant to identify species causing animal burrows and to develop an appropriate abatement program. The vector control specialist and wildlife consultant determined that gophers, and not ground squirrles, were burrowing in the biofilter.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 12: Monthly site inspection was conducted, animal burrows were filled in, trash and debris were removed, and manual removal of woody vegetation began.

August 17: The overflow junction box grate was replaced with a redwood cover.

August 19: Removal of woody vegetation was completed. Box traps initially set to mitigate gophers. Traps checked and placed in fresh burrows daily.

August 24: Water was removed from the overflow structure to prevent vectors and assist in non-storm water discharge observations.

September 8: One gopher caught in trap.

Vector Activities

July 1: Mosquito larvae treated with VectoLex™.

July 6-7: Breeding observed.

July 8: Site treated with a bacterial toxin (VectoLex™ or VectoBac™).

July 20-21: No breeding observed.

July 27-29: Breeding observed.

July 29-30: Inlet structure treated with Golden Bear™ (0.54 ounces).

Issues / Solutions

Weeks of July 12, 19, 26 and August 2, 9, 16, 23: Inspected site for non-storm water discharges.

Vegetation within the infiltration does not meet specified coverage. The infiltration basin will be hydroseeded during November per the MID guidelines.

I-210/East Orcas Avenue Continuous Deflection Separators (Site ID 73102) MW/Law

I-210/East of Filmore Street Continuous Deflection Separators (Site ID 73103) MW/Law

Activities

July 27: Law Crandall, Caltrans and Montgomery toured the site to verify that tributary drain inlets were stenciled.

Status

District clearances continue. See schedule below.

Schedule

Preliminary Design/Construction Schedule for CDS Units – PS&E Process

Activities	**Scheduled Dates**	**Actual Dates**	**Duration (calendar weeks)**
Obtain EA	06/01/99	06/04/99	
Begin Clearance	06/21/99	06/28/99	
Obtain District Clearances	07/26/99	09/14/99	4
To Santa Ana			
End Santa Ana Review, Advertise, and Bid Opening	12/07/99		12
Award Contract	01/04/00		4
Begin Construction	02/01/00		4
Complete Construction	03/14/00		6
Fully Operational	03/28/00		2

I-5/I-605 Extended Detention Basin Lined (Site ID 74101) BC

Monitoring/Sampling Activities

August 9, 11, 18: Adjustment and flow measurements conducted at the influent and effluent meter locations using potable water. H– flume installed at the effluent discharge.

September 9: Caltrans personnel onsite to witness calibration verification of the H-flume.

Operations and Maintenance

June 30: Monthly site inspection was conducted for July.

July 14: Monthly site inspection was again conducted for July due to rainfall the previous week.

August 4: Monthly site inspection was conducted for August.

September 9: Monthly site inspection was conducted for September.

Vector Activities

None noted during routine inspection.

Issues / Solutions

Weeks of August 9, 16, 23, 30 and September 6: Inspected site for non-storm water discharges.

September 7: On-site to caulk H-flume installation.

Broken sprinkler noted; it is scheduled for repair by Caltrans crews.

I-605/SR-91 Extended Detention Basin – Unlined (Site ID 74102) BC

Monitoring/Sampling Activities

August (month of): Modifications were made to the American Sigma flow meter located at the influent to remove "noise" from the data being collected and prevent false flow readings.

August 9, 26, 27: Adjustment and flow measurements conducted at the influent and effluent meter locations using potable water.

September 7: Caltrans personnel onsite to witness calibration verification of the influent monitoring equipment.

For additional general Monitoring/Sampling Activities, refer to "General Monitoring/Sampling Activities – Brown and Caldwell Sites" on page 12.

Operations and Maintenance

June 30: Monthly site inspection was conducted for July.

July 14: Monthly site inspection was again conducted for July due to rainfall the previous week.

August 3: Monthly site inspection was conducted for August.

September 9: Monthly site inspection was conducted for September.

September 15: A separated joint from the freeway drain inlet (the corrugated pipe for the conveyance system) was repaired by BC personnel.

Vector Activities

None noted during routine inspection.

Issues / Solutions

None

Paxton Maintenance Station Media Filter (Site ID 74103) BC

Metro Maintenance Station Multi-Chamber Treatment Train (Site ID 74104) BC

Status

Metro MS: District clearances have been obtained. Plans and specifications are being prepared for submittal to the District Office of Engineer for further review. See schedule.

Paxton MS: Clearance process continues. See schedule.

Schedule

Design/Construction Schedule for Metro MS MCTT

Activities	Scheduled Dates	Actual Dates	Duration (calendar weeks)
Obtain EA	06/01/99	06/16/99	
Begin Clearance Process	06/28/99	07/02/99	
Obtain District Clearances	07/30/99	09/09/99	4
To Dist OE			
Obtain District OE Approval/to HQ	10/15/99		4
End HQ Review, Advertise & Bid Opening	01/07/00		12
Award Contract	02/04/00		4
Begin Construction	03/03/00		4
Complete Construction	06/23/00		16
Fully Operational	07/07/00		2

Design/Construction Schedule for Paxton PR Media Filter

Activities	Scheduled Dates	Actual Dates	Duration (calendar weeks)
Obtain EA	06/01/99	07/15/99	
Begin Clearance Process	06/28/99	07/16/99	
Obtain District Clearances/to Dist OE	07/16/99	09/16/99	
Obtain District OE Approval/to HQ	10/22/99		
End HQ Review, Advertise & Bid Opening	01/14/00		12
Award Contract	02/11/00		4
Begin Construction	03/10/00		4
Complete Construction	06/30/00		16
Fully Operational	07/14/00		2

General Monitoring/Sampling Activities – Brown and Caldwell Sites

Modifications were made to American Sigma flow meters at all sites using area velocity flow meters. They include I-5/I-605 influent, I-605/SR-91 influent, Eastern Regional influent, Foothill influent, Termination influent, Via Verde influent, and Lakewood influent meters. The modifications were made to remove "noise" from the data being collected and prevent false flow readings. The changes were implemented during the month of August.

The supply of decontaminated Teflon tubing is expected to arrive September 15, and installation is expected to begin within the next two weeks with completion by September 30.

Cell phone antennaes are currently in the process of being removed from inside the fiberglass enclosures (Eastern Regional and Foothill Maintenance Stations) in order to improve overall reception. This process will be completed before the end of September.

KLI is scheduled to make modifications to the cellular phones at the stations with AC power, that will enable them to operate independent of the battery supply (currently the cellular phones operate only off of a 12-volt battery). This modification will allow us to reduce battery maintenance.

Alameda Maintenance Station Oil/Water Separator (Site ID 74201) BC

Monitoring/Sampling Activities

September 1: Adjustment and flow measurements conducted using potable water.

Operations and Maintenance

July 14: Monthly site inspection was conducted for July.

August 10: Monthly site inspection was conducted for August.

September 9: Monthly site inspection was conducted for September.

Vector Activities

August 24-25: Evidence of breeding observed, limited to a small area near the outlet (does not appear to be the device itself).

August 25: Outlet treated with Altosid™.

September 1: Breeding observed.

September 2: Site treated with Altosid™.

September 7: Breeding observed.

September 8: Site treated with Altosid™.

Issues / Solutions

Weeks of August 9, 16, 23, 30 and September 6: Inspected site for non-storm water discharges.

Eastern Maintenance Station Media Filter (Site ID 74202) BC

Monitoring/Sampling Activities

August 9, 11, 12, 17, 24, 31: Adjustment and flow measurements conducted using potable water.

Operations and Maintenance

July 14: Monthly site inspection was conducted for July.

August 9: Monthly site inspection was conducted for August.

August 24: Ladders installed in the sediment and sand filter chambers.

September 9: Monthly site inspection was conducted for September.

Vector Activities

None noted during routine inspection.

Issues / Solutions

None

Foothill Maintenance Station Media Filter (Site ID 74203) BC

Monitoring/Sampling Activities

August 17, 31: Adjustment and flow measurements conducted using potable water.

September 8: Water testing with American Sigma personnel to resolve influent sensor problems.

Operations and Maintenance

July 8: Monthly site inspection was conducted for July.

July 14: Monthly site inspection was again conducted for July due to rainfall the previous week.

August 11: Monthly site inspection was conducted for August.

August 24: Ladders installed in the sediment and sand filter chambers.

September 9: Monthly site inspection was conducted for September.

Vector Activities

Breeding is suspected at the site; however, due to lack of ladder access, proper sampling has not taken place this quarter. Ladders were installed on August 24.

Issues / Solutions

American Sigma personnel were onsite to verify and correct problems with the influent sensors. They subsequently discovered a potential software problem and are proceeding to implement a solution. We expect to have the sensors operational by the end of September.

Termination Park and Ride Media Filter (Site ID 74204) BC

Monitoring/Sampling Activities

August 12, 19, 25, and September 1: Adjustment and flow measurements conducted using potable water.

Operations and Maintenance

June 30: Monthly site inspection was conducted for July.

July 9: Monthly site inspection was again conducted for July due to rainfall the previous week.

August 11: Monthly site inspection was conducted for August.

August 26: Ladders installed in the sediment and sand filter chambers.

September 9: Monthly site inspection was conducted for September.

Vector Activities

July 13-16: Evidence of breeding observed; no abatement necessary.

Issues / Solutions

None

Via Verde Park and Ride Multi-Chamber Treatment Train (Site ID 74206) BC

Monitoring/Sampling Activities

August 18, 24: Adjustment and flow measurements conducted using potable water.

September 3: Caltrans personnel onsite to witness calibration verification of the influent.

Operations and Maintenance

July 8: Monthly site inspection was conducted for July.

July 14: Monthly site inspection was again conducted for July due to rainfall the previous week.

August 11: Monthly site inspection was conducted for August.

August 24: Ladder installed in the sediment chamber.

September 9: Monthly site inspection was conducted for September.

Vector Activities

Breeding is suspected at the site; however, due to lack of ladder access, proper sampling has not taken place this quarter. Ladder was installed on August 24.

Issues / Solutions

The standing water in the chambers was drained via pumping on August 18. Brown and Caldwell is working with vector control on how to monitor standing water in the future.

Data collection instrumentation was not operating correctly so it was removed and sent to KLI for repair/replacement. The system is expected to be operational by the end of September.

Lakewood Park and Ride Multi-Chamber Treatment Train (Site ID 74208) BC

Monitoring/Sampling Activities

August 11, 26, and September 2: Adjustment and flow measurements conducted using potable water.

Operations and Maintenance

July 9: Monthly site inspection was conducted for July.

August 11: Monthly site inspection was conducted for August.

August 26: Ladder installed in the sediment chamber.

September 7: Monthly site inspection was conducted for September.

Vector Activities

June 17 and 22: Mosquito larvae treated with VectoLex™.

July 13-16, 27-29, and August 3-4, 10-11: Evidence of breeding in individual sedimentation tubes.

August 24-25: Evidence of breeding in the sump area.

August 25: The sump/stand pipe was to be treated; however, mosquito-proof netting was placed over the pipe, eliminating the need for abatement.

Issues / Solutions

The standing water in the chambers was drained via pumping on August 20. Brown and Caldwell is working with vector control on how to monitor standing water in the future.

The AC power to the Park & Ride and the MCTT is inadequate to run the pumps. Southern California Edison has indicated that it will correct the problem by Friday, September 17. The system will be tested the week of September 20.

Altadena Maintenance Station Bio Strip and Infiltration Trench (Site ID 73211 a, b) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phones were connected.

Summarized analytical data from sediment removed from the biofilter spreader ditch

August 25: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

September 21: Calibrate pressure transducer within Infiltration Trench.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

July 15: Monthly site inspection was conducted. Weeds were manually removed from the Strip.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 5: Inspected site for non-storm water discharges.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule. However, site showed yellowing. Watering frequency increased.

August 12: Monthly site inspection was conducted, and weeds were removed manually.

August 15 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 22 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 24: Water and sediment was removed from the biofilter spreader ditch to prevent vectors and assist in non-storm water discharge observations.

August 29 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule. However, site showed yellowing. As suggested by Martha Blane, the site was scheduled to be watered more frequently until visited by Margot Griswold.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall and RBF so that a watering revised schedule could be developed.

Currently, the strip is watered twice per week. Starting the week of September 20, the site will be watered once per week; this revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Remove any sediment in collector ditch by October 1.

Vector Activities

June 29: Breeding observed.

July 1: Site treated with VectoLex™.

July 6-7: Breeding observed.

July 8: Site treated with a bacterial toxin (VectoLex™ or VectoBac™).

July 27-29: Breeding observed.

July 29-30: Site treated with Golden Bear™.

August 3-4: Breeding observed

August 5: Site treated with VectoBac™.

August 10-11: Breeding observed.

August 12: Site treated with VectoBac™ or Altosid™.

August 16-18: Spreader ditch showed breeding.

August 19: Site treated (with Altosid™ or VectoBac™).

Issues / Solutions

Weeks of July 12, 20, 26 and August 2, 9, 16, and 23: Inspected site for non-storm water discharges.

Biofilter vegetation will not be cut until the week of October 17, as recommended by Martha Blane, to enhance vegetation establishment.

Foothill Maintenance Station Drain Inlet Insert (StreamGuard and Fossil Filter Inserts) (Site ID 73216 a, b) MW/Law

Monitoring/Sampling Activities

July 15: Rubber seals of monitoring vaults replaced.

Analytical data of used drain inlet inserts was summarized.

August 11: Cellular phones were connected.

August 31: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

Rubber berms will be installed around monitoring vaults by September 24.

September 24: Conduct refresher monitoring orientation.

Remove sediment from flumes by October 1.

Operations and Maintenance

July 15: Monthly site inspection was conducted. Leaves were removed from the StreamGuard Insert.

August 12: Monthly site inspection was conducted.

September 27: Install new DIIs and fill any gaps found.

Vector Activities

None note during routine inspection.

Issues / Solutions

Weeks of July 12, 19, 26 and August 2, 9, 16, 23: Inspected site for non-storm water discharges.

Las Flores Maintenance Station Drain Inlet Insert (StreamGuard and Fossil Filter Inserts) (Site ID 73217 a, b) MW/Law

Monitoring/Sampling Activities

July 15: Rubber seals of monitoring vaults replaced.

Analytical data of used drain inlet inserts was summarized.

August 11: Cellular phones were connected.

September 2: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

Rubber berms will be installed around monitoring vaults by September 24.

September 24: Conduct refresher monitoring orientation.

Remove sediment from flumes by October 1.

Operations and Maintenance

July 15: Monthly site inspection was conducted. Sediment was removed from the Fossil Filter Insert.

August 12: Monthly site inspection was conducted.

September 27: Install new DIIs and fill any gaps found.

Vector Activities

The service agreement with Los Angeles County West Vector Control District was received by Montgomery Watson on September 14. Anticipated execution of the service agreement is the week of September 20.

Issues / Solutions

Weeks of July 12, 19, 26 and August 2, 9, 16: Inspected site for non-storm water discharges.

Rosemead Maintenance Station Drain Inlet Insert (StreamGuard and Fossil Filter Inserts) (Site ID 73218 a, b) MW/Law

Monitoring/Sampling Activities

July 15: Rubber seals of monitoring vaults replaced.

Analytical data of used drain inlet inserts was summarized.

August 11: Cellular phones were connected.

August 31: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

Rubber berms will be installed around monitoring vaults by September 24.

September 24: Conduct refresher monitoring orientation.

Remove sediment from flumes by October 1.

Operations and Maintenance

July 15: Monthly site inspection was conducted. Sediment was removed from the Fossil Filter Insert.

August 12: Monthly site inspection was conducted. Sediment and debris was removed from the Fossil Filter Insert. Law Crandall, Caltrans, Montgomery Watson, Larry Walker Associates, and the Vector Control District met at the site to discuss vector control.

September 27: Install new DIIs and fill any gaps found.

Vector Activities

The flume housing has retained water for much of this period.

June 9: Altosid™ briquette placed in the flume housing.

August 5: In excess of 50 larvae per dip, including pupae, found. Due to the advanced stage of development of the immature mosquitoes, Golden Bear™ was applied to the flume housing (0.02 ounces).

August 12: Flume housing dry; no treatment required.

Issues / Solutions

Weeks of July 12, 19, 26 and August 2, 9, 16: Inspected site for non-storm water discharges.

I-605/SR-91 Interchange Bio Strip & Swale (Site ID 73222 a, b) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phones were connected.

September 7: Calibrated bubbler flow meters. Two of the four flow meters calibrated without problem; the Strip influent flow meter had eratic readings and the Swale influent flow meter was not data logging. Subsequently, the two meters were sent to American Sigma for repair.

Meters will be returned by September 22 and installed and calibrated by September 24.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by 29 September.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

Strip:

July 14: Monthly site inspection was conducted and potential landscape contractors performed a site walk. Trash and debris were removed and weeds were manually removed.

July 29: Law Crandall toured the site with vector control specialist and wildlife consultant to identify species causing animal burrows and to develop an appropriate abatement program. The vector control specialist and wildlife consultant determined that gophers, and not ground squirrles, were burrowing in the biofilter.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 12: Monthly site inspection was conducted. Trash and debris were removed, weeds were manually removed, and animal burrows were filled in.

August 15 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 19: Box traps initially set to mitigate gophers. Traps checked and placed in fresh burrows daily.

August 22 (week of), August 29 (week of), September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall, and RBF so that a watering revised schedule could be developed

Currently, the strip is watered once per week. Starting the week of September 20, the site will be watered once every two weeks; this revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Swale:

July 14: Monthly site inspection was conducted and potential landscape contractors did a site walk. Weeds were manually removed.

July 27: Law Crandall, Caltrans and Montgomery Watson toured the site to verify that tributary drain inlets were stenciled.

July 29: Law Crandall toured the site with vector control specialist and wildlife consultant to identify species causing animal burrows and to develop an appropriate abatement program. The vector control specialist and wildlife consultant determined that gophers, and not ground squirrles, were burrowing in the biofilter.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 12: Monthly site inspection was conducted. Trash and debris were removed, weeds were manually removed, animal burrows were filled in, and soil which had fallen into the energy dissipator was removed.

August 15 (week of), August 22 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 19: Box traps initially set to mitigate gophers. Traps are checked and placed in fresh burrows daily.

August 23: Two gophers caught in traps.

August 29 (week of), September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall, and RBF so that a revised watering schedule could be developed.

Currently, the swale is watered once every two weeks. Starting the week of September 20, the site will be watered once every three weeks; this revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Vector Activities

June 16 and 24: Swale treated for mosquito larvae with VectoLex™.

Issues / Solutions

Between July 15 and 27, a vehicular accident occurred causing a car to drive across the Strip. No structural damage occurred to the Strip's collector ditch, and little damage was done to the vegetation.

A small section of salt grass from the Strip was removed on July 26 and 27 and transplanted at the 605 Carson/Del Amo site to help the site achieve the required coverage. Areas where salt grass was removed were reseeded on August 2.

Biofilter vegetation will not be cut until the week of October 17, as recommended by Martha Blane, to enhance vegetation establishment.

Cerritos Maintenance Station Bio Swale (Site ID 73223) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phones were connected.

August 17: American Sigma and Caltrans accompanied Law Crandall to site to verify equipment was installed properly and that calibration procedures were acceptable. No problems were noted.

August 17 and 25: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

July 14: Potential landscape contractors performed a site walk.

July 15: Monthly site inspection was conducted and weeds were manually removed.

July 27: Law Crandall, Caltrans and Montgomery Watson toured the site to verify that tributary drain inlets were stenciled.

July 29: Law Crandall toured the site with vector control specialist and wildlife consultant to identify species causing animal burrows and to develop an appropriate abatement program. The vector control specialist and wildlife consultant determined that gophers, and not ground squirrles, were burrowing in the biofilter.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 12: Monthly site inspection was conducted. Trash and debris were removed, weeds were manually removed, and animal burrows were filled.

August 15 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 19: Box traps initially set to mitigate gophers. Traps checked and placed in fresh burrows daily.

August 20: Two gophers caught in traps.

August 22 (week of), August 29 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 3: One gopher caught in trap.

September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 10: One gopher caught in trap.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall, and RBF so that a revised watering schedule could be developed.

Currently, the swale is watered once every two weeks. Starting the week of September 20, the site will be watered once every three weeks; this revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Vector Activities

June 16: Mosquito larvae treated with VectoLex™.

Issues / Solutions

Biofilter vegetation will not be cut until the week of October 17, as recommended by Martha Blane, to enhance vegetation establishment.

I-5/I-605 Bio Swale (Site ID 73224) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phones were connected.

August 17: American Sigma and Caltrans accompanied Law Crandall to site to verify equipment was installed properly and that calibration procedures were acceptable. No problems were noted.

September 2: Calibrated bubbler flow meters.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by 29 September.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

July 14: Monthly site inspection was conducted and potential landscape contractors did a site walk. Trash and debris were removed, weeds were manually removed, and a small eroded area of the swale slope was repaired.

July 29: Law Crandall toured the site with vector control specialist and wildlife consultant to identify species causing animal burrows and to develop an appropriate abatement program. The vector control specialist and wildlife consultant determined that gophers, and not ground squirrles, were burrowing in the biofilter.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 12: Monthly site inspection was conducted. Trash and debris were removed, weeds were manually removed, animal burrows were filled, and erosion control vegetation was cut to a height of 6 inches.

August 15 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 19: Box traps initially set to mitigate gophers. Traps checked and placed in fresh burrows daily.

August 22 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 23: One gopher caught in trap.

August 29 (week of), September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall, and RBF so that a revised watering schedule could be developed.

Currently, the swale is watered twice per week. Starting the week of September 20, the site will be watered once per week; this revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Vector Activities

June 16 and 24: Mosquito larvae treated with VectoLex™.

June 29: Breeding observed.

July 1: Mosquito larvae treated with VectoLex™.

July 6-7: Breeding observed.

July 13-16: Breeding observed in the dissipator.

July 15: Mosquito larvae treated with VectoBac™.

August 3-4: Breeding observed.

August 5: Energy dissipator treated with VectoBac™.

August 10-11: Breeding observed.

August 12: Energy dissipator treated (with Altosid™ or VectoBac™).

August 16-18: Breeding noted at the energy dissipator.

August 19: Energy dissipator treated with (Altosid™ or VectoBac™).

August 24-25: Breeding noted at the energy dissipator.

August 25: Site treated with Altosid™.

September 1: Breeding noted at the energy dissipator.

September 2: Site treated with Altosid™.

September 7: Breeding noted at the energy dissipator.

September 8: Site treated with Altosid™.

Issues / Solutions

Biofilter vegetation will not be cut until the week of October 17, as recommended by Martha Blane, to enhance vegetation establishment.

I-605/Carson & Del Amo Bio Swale (Site ID 73225) MW/Law

Monitoring/Sampling Activities

August 11: Cellular phones were connected.

September 3: Calibrated bubbler flow meters. The Swale influent flow meter calibrated without problem; the Swale effluent flow meter was not data logging. Subsequently, the flow meter was sent to American Sigma for repair.

The meter will be returned by September 22 and installed and calibrated by September 24.

September 5 (week of): Teflon tubing was decontaminated by the laboratory.

Teflon tubing installation will be done by September 29.

September 24: Conduct refresher monitoring orientation.

Operations and Maintenance

July 14: Monthly site inspection was conducted and potential landscape contractors performed a site walk. Trash and debris were removed and weeds were manually removed.

July 30: Fertilizer was applied to Strip by RBF.

August 1 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

August 4: Maintenance boundaries were delineated using survey tape and stakes.

August 8 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule. Transplanted area was yellow, so the site continued to be watered daily.

August 12: Monthly site inspection was conducted. Trash and debris were removed, weeds were manually removed, animal burrows were filled, seeps in the swale invert were filled, and the invert was smoothed.

August 15 (week of), August 22 (week of), August 29 (week of): Watered biofilter in accordance with Martha Blanes recommended schedule. Transplanted area was yellow, so the site continued to be watered daily.

September 6 (week of): Watered biofilter in accordance with Martha Blane's recommended schedule.

September 14: The biofilter was inspected by Margot Griswold, Caltrans, Montgomery Watson, Law Crandall, and RBF so that a revised watering schedule could be developed.

Currently, the site is irrigated with 400 gallons of water daily. Starting the week of September 20, the site will be watered with 400 gallons every other day. In the event that the grass starts browning, the watering frequency will be increased to 400 gallons daily. The revised watering schedule will be re-evaluated with the assistance of Margot Griswold in mid-October.

Vector Activities

June 16: Mosquito larvae treated with VectoLex™.

July 13-16: Breeding observed in the dissipator.

July 15: Mosquito larvae treated with VectoBac™.

Issues / Solutions

A small section of salt grass from the I-605/SR 91 Strip was removed on July 26 and 27, and transplanted at the 605 Carson/Del Amo site to help the Del Amo site achieve the required coverage. Areas where salt grass was removed at the I-605/SR 91 were reseeded on August 2.

Biofilter vegetation will not be cut until the week of October 17, as recommended by Martha Blane, to enhance vegetation establishment.

District 11 BMP Pilot Sites

Monitoring Activities Applicable to All Sites

In late June, the equipment at all of the sampling stations was powered off and the sample bottles were removed. The flow meters were removed from the stations and brought to the laboratory to install new Doppler processing boards and to modify the power system on the meters. A revised version of the Doppler board was supplied by American Sigma. The new boards improve the performance of the Doppler processing under low flow and clean water conditions. In early July, these flow meters were flow tested in a flow tank at Kinnetic Laboratories, Inc (KLI). Five flow meters were sent back to American Sigma, Inc. for LCD display problems.

In August, all sites had their sample hoses pulled and sent to the lab for annual decontamination and blanking. In addition, all the sites were re-installed with the flow meters that include the Royal Mod boards for the AVBs and a power supply fix for the ultrasonics and AVBs.

Maintenance Activities Applicable to all sites

Monthly site inspections occurred in the first week of June, second week of July and first weeks of August and September. Minor maintenance and trash pickup was performed during each monthly inspection.

In early August, KLI secured a contract with Tree of Life Nursery to grow and maintain a stock of 1000 square feet of salt grass (*Disticillus spicata*) reserve until March 31, 2000. In September, 80 mature flats of salt grass appeared to be in good health, 60 flats continued to show good growth, and 500 new sprouting flats (salt grass) were germinating.

Vector Activities Applicable to all sites

On August 31, 1999, CHD Vector Control staff inspected all the BMPs in San Diego County with the exception of the BMPs located at I-5/Palomar Airport Road, Carlsbad MS, SR-78/Melrose Drive, and I-15/SR-78. As explained in a previous Bi-Weekly report, the above four BMP's are only being inspected every four weeks until a rain event occurs.

On September 7, 1999, CHD Vector Control staff again inspected all the BMPs in San Diego County with the same exceptions as listed above.

I-5/SR-56 Extended Detention Basin (Site ID 111101) KLI

Monitoring/Sampling Activities

In early September, decontaminated and blanked sample hoses were replaced at the inlet and the outlet. This site was fully calibrated in September and is ready to monitor for the 1999/2000 storm season. The flow meter manufacturer, American Sigma, Inc., observed the calibration.

Operations and Maintenance

In July, A rabbit fence was installed to the existing fence around the basin. The site was weeded August 14. Emergent woody wetland vegetation was hand pulled on August 4 and September 9.

Vector Activities

The monitoring efforts of June 7, 15, 28, July 5, 19, 26 and August 2, 9, 16, 23 showed breeding at the site.

On August 31, 1999, staff found only a very minor amount of standing water in one small depression in the first basin. No mosquito breeding was noted. On September 7, staff found standing water in the first and second basins which was breeding *Culex pipiens* (2nd and 3rd instars at 2.0 larvae/dip). Staff did not treat the breeding.

Issues / Solutions

Non-storm flows were noted , and District 11 was notified.

SR-78/I-15 Extended Detention Basin (Site ID 111102) KLI

Monitoring/Sampling Activities

In July, the decision was made to remove the Palmer-Bowlus flume permanently, because it requires intensive observation by technicians to reliably measure low flows. In September, KLI improved flow meter resolution by performing the flow calculations in the data logger using an Area-Velocity Bubbler.

In early September, decontaminated and blanked sample hoses were replaced at the inlet and the outlet. This site was fully calibrated in August and is ready to monitor for the 1999/2000 storm season.

Operations and Maintenance

The site was weeded August 14.

Vector Activities

None noted during routine inspection.

Issues / Solutions

See inspection table.

I-5/La Costa Avenue Infiltration Basin (Site ID 111103) KLI

Monitoring/Sampling Activities

None.

Operations and Maintenance

Emergent woody wetland vegetation (*Typha*) was pulled on August 7.

Vector Activities

The site was abated with mosquito fish (*Gambusia affinis*).

This site was not visited on August 31, 1999. On September 7, 1999, staff noted a small amount of standing water (four square feet) near the inlet. No mosquito breeding was noted.

Issues / Solutions

None this period.

I-5/La Costa Wet Basin (Site ID 111104) KLI

Monitoring/Sampling Activities

In September, the inlet and outlet at the Wet Basin were fully instrumented and calibrated to the extent possible. It is not practical to volumetrically calibrate the outlet because it is impossible to introduce open channel flow in the outlet structure. The outlet has been level calibrated to the manufacturer's specifications. The inlet has been volumetrically calibrated. The site is ready to monitor for the 1999/2000 storm season. Monthly 48-hour time-weighted composite samples of the 6-inch inlet pipe that maintains the permanent pool of water in the wet basin will be sampled later in September and continue until May.

Operations and Maintenance

KLI assumed plant establishment responsibilities for the Wet Basin on July 12. Upon taking plant establishment responsibilities, KLI performed a thorough species count with a botanist and Martha Blane associate, Julie Greene. KLI negotiated a 90-day plant establishment contract with Native Landscape, Inc that began on July 12. The site was hand weeded on August 2-5. Based on KLI's species count and Martha Blane's advice, two re-plantings of bulrushes and cattails occurred on July 10 and August 19-20. The new plantings appear to have good growth and are healthy.

In late August, Native Landscape Inc. installed a pressure regulator and a wye filter into the irrigation system. They also installed an above ground extension of the irrigation system, approximately 15 feet onto the peninsula on the west side, in order to provide adequate irrigation to the peninsula. The irrigation schedule at the Wet Basin was altered to be watered every other day, based on the recommendation of Martha Blane.

Watercress at the wet basin was weeded in early September. No herbicide was ever applied and no additional weeding has occurred since the watercress was pulled.

On September 13, KLI added a second layer of gravelbags to the diversion structure in the trapezoidal channel in order to increase the water level of the wet. A third layer of gravelbags was placed on September 15. Gravelbags have been placed to increase the water level of the basin to reach permanent pool elevation.

Vector Activities

The monitoring efforts of June 17-18; July 5, 19, 26 and August 2, 9 showed breeding.

The site was abated with Altosid™ or VectoBac™ and mosquito fish (*Gambusia affinis*) in June. Mosquito fish appear to be keeping mosquito levels down to a reasonable level. On July 5 and 19, the site was treated with 20 pounds of Bactimos™.

On August 31, 1999, staff noted the watercress increasing around both ponds and covering the ditch. Mosquito fish were plentiful and no mosquito breeding was noted. On September 7, 1999, staff noted that the watercress had been removed but that the emergent vegetation was

increasing dramatically. Mosquito fish were again plentiful and no mosquito breeding was noted.

Issues / Solutions

None this period.

I-5/Manchester Avenue Extended Detention Basin (Site ID 111105) KLI

Monitoring/Sampling Activities

The site was fully instrumented and calibrated in August and is ready to monitor for the 1999/2000 storm season.

Operations and Maintenance

The site was weeded on August 14.

Vector Activities

None noted during routine inpection.

Issues/Solutions

None this period.

Kearney Mesa Maintenance Station StormFilter - Perlite/Zeolite (Site ID 112201) KLI

Monitoring/Sampling Activities

In July, KLI moved cellular phone antennas out of the security enclosures and to the tops of the rain gauge poles for better reception.

In early September, decontaminated and blanked sample hoses were replaced at the inlet and the outlet. This site was fully calibrated in August and is ready to monitor for the 1999/2000 storm season.

Operations and Maintenance

No maintenance activities to note for this entire period.

Vector Activities

On July 26, two *Culex pipiens* pupae (0.15 immatures/dip) were found in the first chamber.

Staff noted standing water on August 31 and September 7 but no mosquito breeding was noted. On September 7, 1999, staff found adult mosquitoes, *Culex stigmatosoma*, in the first chamber.

Issues / Solutions

No new non-storm flows were observed.

Escondido Maintenance Station Media Filter - Sand (Site ID 112202) KLI

Monitoring/Sampling Activities

In July, KLI moved cellular phone antennas out of the security enclosures and to the tops of the rain gauge poles for better reception.

In September, decontaminated and blanked sample hoses were replaced at the inlet and the outlet. This site was fully calibrated in September and is ready to monitor for the 1999/2000 storm season.

Operations and Maintenance

On August 9, the canal gate in the pre-sedimentation chamber was opened and the standing water drained. However, the grade on the pre-sedimentation chamber is very flat, and approximately 1 inch of standing water remains in the center of the chamber.

Vector Activities

No mosquito breeding noted during routine inspections this period.

On August 31, 1999, staff found the water level increased since the previous inspection but there was still not enough water to entirely cover the bottom of the chamber. Psychodid larvae were noted. On September 7, 1999, no mosquito breeding was noted.

Issues / Solutions

New non-storm flows were noted, and District 11 was notified.

La Costa Park and Ride Media Filter - Sand (Site ID 112203) KLI

Monitoring/Sampling Activities

In July, KLI moved cellular phone antennas out of the security enclosures and to the top of the rain gauge pole for better reception.

In September, KLI is planning to retrofit the inlet with a 1-ft H-flume and is awaiting the arrival of the flume from the manufacturer. The flume is currently scheduled to arrive September 17. The flume will be installed and calibrated during the week of September 20. Decontaminated and blanked sample hose was replaced at the outlet and the outlet was fully calibrated on September 10. Rick Graff from San Diego Baykeepers observed the hose installation and the volumetric calibration.

Operations and Maintenance

No maintenance activities to note for this entire period.

Vector Activities

The monitoring efforts of July 19 and August 16, 23, 31 showed breeding.

On August 31, 1999 staff found a small amount of standing water in the center depression in the spreader trough. It was breeding *Culex pipiens* (3rd instars) at 3.0 larvae/dip. Site was not treated. On September 7, 1999, the site was dry.

Issues / Solutions

None this period.

SR-78/I-5 Park and Ride Media Filter - Sand (Site ID 112204) KLI

Monitoring/Sampling Activities

In July, KLI moved cellular phone antennas out of the security enclosures and to the tops of the rain gauge poles for better reception.

In early September, decontaminated and blanked sample hoses were replaced at the inlet and the outlet. This site was fully calibrated in September and is ready to monitor for the 1999/2000 storm season.

Operations and Maintenance

On September 14, the inlet pipe was one fifth full of sediment. Maintenance was performed and the pipe was cleaned.

Vector Activities

June 1: Small amount of water present in depression below pipe in the second chamber trough; one mosquito larva of *Culex pipiens* present.

June 7: 1" of water in influent basin supporting *Culex pipiens* larvae and pupae at 0.5 per dip; ½ inch of standing water present in the second basin containing *Culex pipiens* larvae. June 15: Small depression in second basin containing *Culex pipiens* larvae and one chironomid midge larva.

June 22: Standing water in small depression in the second basin; a few early instar larvae of *Culex pipiens* and *Culex tarsalis* present; one chironomid midge larva present.

June 28: Site dry.

Signs of midge breeding activity observed the week of July 12; no treatment recommended.

July 19: Mosquito breeding (*Culex tarsalis*) in a small depression in the second basin.

The site was inspected on August 31 or September 7 and was dry on both inspection dates.

Issues / Solutions

No new non-storm flows were observed since the last bi-weekly.

Melrose Ave/SR-78 Bio Swale (Site ID 112205) KLI

Monitoring/Sampling Activities

In September, KLI retrofitted the site with a 12-inch PVC pipe at the inlet. A low-profile Area-Velocity Bubbler has been order from American Sigma Inc. and will be installed to measure flow at the inlet during the week of September 20. This flow measurement technique was proven with volumetric calibrations using an identical meter. KLI is planning to retrofit the outlet with a 1.5-ft H-flume and is awaiting the arrival of the flume from the manufacturer. The flume is currently scheduled to arrive September 22. The cutthroat flume has been removed from the outlet structure in anticipation of the new H-flume. The flume will be installed and calibrated during the weeks of September 20 and 27.

Operations and Maintenance

KLI assumed plant establishment responsibilities for the site on June 28. KLI watered the site everyday from June 28 through July 2. Watering was then reduced to twice a week on the following week (July 4 – 10). After watering the site twice a week for two weeks, the sod appeared healthy, so watering was decreased to once a week for two 45 minute periods within an 8-hour period for the next four weeks (July 18 – August 14). During the last four weeks (August 15 – September 11), the site was watered once a week for two 30-minute periods within an 8-hour period.

The landscape contractor weeded the site on August 14 and KLI applied a fertilizer, GroPower Plus, on August 11.

Vector Activities

None noted during routine inspection.

Issues / Solutions

None this period.

I-5 Palomar Airport Biofiltration Swale (Site ID 112206) KLI

Monitoring/Sampling Activities

In September, KLI retrofitted the site with an 8-inch PVC pipe at the inlet. A low-profile Area-Velocity Bubbler has been order from American Sigma Inc. and will be installed to measure flow at the inlet during the week of September 20. This flow measurement technique was proven with volumetric calibrations using an identical meter. KLI is planning to retrofit the outlet with a 1-ft H-flume and is awaiting the arrival of the flume from the manufacturer. The flume is currently scheduled to arrive September 17. The flume will be installed and calibrated during the weeks of September 20 and 27. The rain gauge was moved out of a rain shadow on September 9.

Operation and Maintenance

KLI assumed plant establishment responsibilities for the site on June 28. Since June 28, the site was watered twice a day, once at 2 a.m. and once at 12 p.m. The sod appeared healthy, so watering was decreased to once a week on July 15. The irrigation schedule for the salt grass was recently reduced to the schedule Marina Landscape deems necessary for their plantings.

The landscape contractor weeded the site on August 14.

Vector Activities

On August 16, a small amount of standing water was noted, and one syrphid larva (Diptera: Syrphidae) was noted.

Issues / Solutions

Some of the salt grass at the site was being eaten by an unidentified organism in early August. Bill Walton from UC Riverside was contacted, and samples of the eaten grass were collected. The samples were analyzed under a microscope, and it was determined that the salt grass was being eaten (damage was not due to disease). Grasshoppers or beetles may have eaten the salt grass. This problem was not significant and was monitored. On August 31, Bill Walton caught dung beetles in pan traps. Bill Walton is researching if the dung beetles are capable of eating salt grass. Presently, the salt grass has recovered and appears healthy and normal.

New non-storm flows were observed, and District 11 was notified.

Carlsbad Maintenance Station Bio Strip Infiltration Trench (Site ID 112207) KLI

Monitoring/Sampling Activities

Strip:

In July, KLI moved cellular phone antennas out of the security enclosures and to the tops of poles for better reception. The rain gauge was moved out a rain shadow on September 9.

In September, KLI is planning to retrofit the inlet with a 1-ft H-flume and is awaiting the arrival of the flume from the manufacturer. The flume is currently scheduled to arrive September 17. The flume will be installed and calibrated during the weeks of September 20 and 27. Concrete work was already done on September 8 in anticipation of flume installation. In early September, KLI retrofitted the outlet with a 6-inch PVC pipe. A low-profile Area-Velocity Bubbler has been order from American Sigma Inc. and will be installed to measure flow at the outlet during the week of September 20. This flow measurement technique was proven with volumetric calibrations using an identical meter.

Trench:

On July 12 and August 12, KLI took well measurements for groundwater depth. Well depth will be measured again in late September.

A lysimeter was installed on September 7. Previous installation attempts were not possible because of standing water in the trench.

Operations and Maintenance

Strip:

In June, a rabbit fence was installed around both the eastern and western strips of salt grass.

In July, a concrete block structure was constructed as a permanent fix for the bypass on the western strip. The concrete block includes a ½" ID PVC weep hole so that the site will not hold standing water.

In mid August, a 2' x 4' area of dead salt grass was observed in the western most section. Martha Blane observed that dead grass and concluded that the root structure was still intact. On September 7, KLI inspected the site and new growth in the 2' x 4' area is apparent.

KLI assumed plant establishment responsibilities for the site on June 26. KLI watered the site everyday from June 28 through July 2. Watering was then reduced to twice a week on the following week (July 4 – 10). After watering the site twice a week for two weeks, the sod appeared healthy, so watering was decreased to once a week for two 20 minute periods within an 8-hour period for the next four weeks (July 18 – August 14). During the last four weeks (August 15 – September 11), the watering schedule was increased slightly because of a small amount of browning. The site was watered once a week for two 30-minute periods within an 8-hour period.

The landscape contractor weeded the site on August 7 and KLI applied a fertilizer, GroPower Plus, on August 11.

Trench: No site-specific maintenance activities have occurred for this entire period.

Vector Activities

None noted during routine inspection.

Issues / Solutions

No new non-storm flows were observed.

BMP OPERATIONS STATUS

Location	BMP Type	Monitor Consultant	Site "On-line"[2]	Begin Instrument Install[1]	Complete Instrument Install	Operational[3] (start empirical and maintain)	Ready for Water Quality Monitoring[4]
DISTRICT 7							
I-605/SR-91	IB	MW/Law	4/9/99	2/15/99	3/26/99	4/9/99	4/9/99
I-210 East of Orcas	CDS	MW/Law	3/14/00	3/14/00	3/28/00	3/28/00	3/28/00
I-210 East of Filmore	CDS	MW/Law	3/14/00	3/14/00	3/28/00	3/28/00	3/28/00
I-5/I-605	EDB	BC	2/8/99	2/15/99	2/26/99	2/26/99	2/26/99
I-605/SR-91	EDB	BC	2/8/99	2/8/99	2/19/99	2/22/99	2/22/99
Paxton Park & Ride	MF	BC	6/30/00	6/30/00	7/14/00	7/14/00	7/14/00
Metro MS	MCTT	BC	6/23/00	6/23/00	7/7/00	7/7/00	7/7/00
Alameda MS	OWS	BC	4/19/99	4/20/99	5/7/99	5/17/99	5/17/99
Eastern MS	MF	BC	2/1/99	2/1/99	2/12/99	2/15/99	2/15/99
Foothill MS	MF	BC	2/22/99	2/22/99	3/5/99	3/8/99	3/8/99
Termination Park & Ride	MF	BC	3/26/99	4/5/99	5/7/99	5/17/99	5/17/99
Via Verde Park & Ride	MCTT	BC	4/15/99	4/19/99	5/7/99	5/17/99	5/17/99
Lakewood Park & Ride	MCTT	BC	4/30/99	4/30/99	5/7/99	5/17/99	5/17/99
Altadena	Bio Strip/IT	MW/Law	2/26/99	2/18/99	2/19/99	8/30/99	10/1/99
Foothill	DII	MW/Law	1/15/99	1/18/99	1/22/99	1/22/99	1/22/99
LasFlores	DII	MW/Law	1/15/99	1/18/99	1/21/99	1/22/99	1/22/99
Rosemead	DII	MW/Law	1/15/99	1/18/99	1/21/99	1/22/99	1/22/99
I-605/SR-91	Bio Strip/Swale	MW/Law	2/25/99	2/25/99	3/26/99	8/30/99	10/1/99
Cerritos MS	BioSwale	MW/Law	2/17/99	2/18/99	9/15/99	8/30/99	10/1/99
I-5/I-605	BioSwale	MW/Law	2/17/99	2/18/99	9/15/99	8/30/99	10/1/99
I-605/ Del Amo	BioSwale	MW/Law	2/23/99	2/22/99	9/15/99	8/30/99	10/1/99
DISTRICT 11							
I-5/SR-56	EDB	KLI	1/8/99	1/11/99	1/24/99	1/24/99	1/24/99
I-15/SR-78	EDB	KLI	1/8/99	1/11/99	1/24/99	1/24/99	1/24/99
I-5/La Costa (West)	IB	KLI	1/8/99	1/11/99	1/28/99	8/30/99	10/1/99
I-5/La Costa (East)	WB	KLI	6/15/99	7/24/99[5]	9/15/99[5]	6/29/99	10/1/99
I-5/Manchester (East)	EDB	KLI	6/15/99	7/24/99[5]	9/15/99[5]	6/29/99	10/1/99
Kearney Mesa MS	StormFilter (Perlite/Zeolite)	KLI	2/12/99	2/12/99	2/12/99	2/16/99	2/16/99
Escondido MS	MF	KLI	2/12/99	2/12/99	2/12/99	2/16/99	2/16/99
La Costa Park & Ride	MF	KLI	2/19/99	2/19/99	2/26/99	2/26/99	2/26/99
SR-78/I-5 Park & Ride	MF	KLI	2/19/99	2/19/99	3/1/99	3/1/99	3/1/99
Melrose Ave/SR-78	Bio Swale	KLI	2/19/99	2/19/99	9/24/99[6]	6/26/99	10/1/99
I-5 Palomar Airport Road	Bio Swale	KLI	6/30/99	7/24/99	9/24/99[6]	6/29/99	10/1/99
Carlsbad MS	Bio Strip/IT	KLI	2/19/99	2/19/99	9/24/99[6]	6/26/99	10/1/99

[1] Equipment installation schedule is dependent upon construction schedule.

[2] Site on-line means BMP will receive stormwater runoff, not necessarily ready for monitoring or operations.

[3] Site operational means BMP meets completion criteria and BMP is turned over to monitoring/maintenance teams to begin empirical observations and maintenance. Biofilters are dependent on plant establishment criteria of 90%. coverage

[4] Ready for water quality monitoring means BMP has a full equipment installation and the equipment is ready to draw samples.

[5] The inlet and outlet will be instrumented with flow meters in late July (after construction and equipment purchase) for calibration. The CR-10s and Samplers will be instrumented 1st week of September and operational 9/15/99.

SUMMARY OF REQUIRED STORMS AND SUCCESSFULLY SAMPLED STORMS PER SITE

Location	BMP Type	Monitoring Consultant	Operational?	Total Storms Required	Successfully Sampled Storms (1)
DISTRICT 7					
I-605/SR-91	IB	MW/Law	Yes	4	
I-210 East of Orcas	CDS	MW/Law		8	
I-210 East of Filmore	CDS	MW/Law		8	
I-5/I-605	EDB	BC	Yes	10	2
I-605/SR-91	EDB	BC	Yes	10	3
Paxton Park & Ride	MF	BC		8	
Metro MS	MCTT	BC		8	
Alameda MS	OWS	BC	Yes	8	
Eastern MS	MF	BC	Yes	8	1
Foothill MS	MF	BC	Yes	8	2
Termination Park & Ride	MF	BC	Yes	8	
Via Verde Park & Ride	MCTT	BC	Yes	8	
Lakewood Park & Ride	MCTT	BC	Yes	8	
Altadena	Bio Strip	MW/Law	Yes	8	
	Infiltration Trench	MW/Law	Yes	4	
Foothill MS	DII north- Stream Guard Insert	MW/Law	Yes	8	4
	DII south- Fossil Filter Insert	MW/Law	Yes	8	4
LasFlores MS	DII north-StreamGuard Insert	MW/Law	Yes	8	5
	DII south-Fossil Filter Insert	MW/Law	Yes	8	5
Rosemead MS	DII north-Fossil Filter Insert	MW/Law	Yes	8	5
	DII south-StreamGuard Insert	MW/Law	Yes	8	5
I-605/SR-91	Bio Strip	MW/Law	Yes	8	
	Bio Swale	MW/Law	Yes	8	
Cerritos MS	BioSwale	MW/Law	Yes	8	
I-5/I-605	BioSwale	MW/Law	Yes	8	
I-605/ Del Amo	BioSwale	MW/Law	Yes	8	
DISTRICT 11					
I-5/SR-56	EDB	KLI	Yes	4	5
I-15/SR-78	EDB	KLI	Yes	10	4
I-5/La Costa (West)	IB	KLI	Yes	4	
I-5/La Costa (East)	WB	KLI	Yes	4	
I-5/Manchester (East)	EDB	KLI	Yes	4	
Kearney Mesa MS	StormFilter (Perlite/Zeolite)	KLI	Yes	8	3
Escondido MS	MF	KLI	Yes	8	3
La Costa Park & Ride	MF	KLI	Yes	4	3
SR-78/I-5 Park & Ride	MF	KLI	Yes	8	2
Melrose Ave/SR-78	Bio Swale	KLI	Yes	8	
I-5 Palomar Airport Road	Bio Swale	KLI	Yes	8	
Carlsbad MS	Bio Strip	KLI	Yes	4	
	Infiltration Trench	KLI	Yes	4	

(1) Total number of successful storms for the DII sites is under review (pending results of water quality data).

OMM PLAN ACTIVITIES

VOLUME I

Volume I was revised and is being reviewed by the Plaintiffs. Comments, from the Plaintiffs, are anticipated on about September 17. Final documents are to be prepared by October 1. The Maintenance Indicator Document (MID) and an updated Section 6 were updated and sent for review during the week of September 6. A supplement that summarizes the changes in Volume I and II was sent September 15.

VOLUME II

Volume II is revised according to the schedule below. The team developed a supplement that summarizes the changes in Volume I and II. It was sent September 15.

Schedule	Date Due
OMM recommended changes to Plaintiffs	June 29
Plaintiff comment to changes	July 7
1st draft sent to Plaintiffs	August 27
Plaintiff Comments due	Sept 17
Response to Comments	Sept 24
Final	Oct 1

MAINTENANCE INDICATOR DOCUMENT

The MID was revised after the draft OMM plans were sent for review. The changes include late requests by the Plaintiffs and solutions to continuing standing water problems. A current version of the Maintenance Indicator Document is included in Appendix A of this report.

DATABASE

A populated database has been prepared to store data collected during OMM activities. Draft reports have been generated summarizing inspection, maintenance, empirical observations, and laboratory results for each BMP site. Sample draft reports as well as sample graphs (precipitation and hydrographs) are provided in Appendix B of this report. A brief demonstration of the reporting function of the database will be provided during the Quarterly meeting.

The database schedule is as follows:

Item	Date
Database Software and File Issued	August 10, 1999
Begin Data Entry	August 11, 1999
Finish Data Entry and Submit Database to RBF	September 15, 1999
Begin Generating Database Reports	September 16, 1999
Submit Database Reports to Plaintiffs for Review and comment	September 30, 1999
Receive Comments from the Plaintiffs	October 7, 1999
Incorporate Comments and Post Reports on the Internet	October 20, 1999

OMM COST

The Maintenance Operation Cost Accounting Summary is provided as Appendix C. Both summary and detail sheets are provided. Costs are provided for Brown and Caldwell sites from December 1998 through August 27, 1999; for Law Crandall sites from December 1998 through August 27, 1999; and for KLI sites from December 1998 through July 1999.

VECTOR ACTIVITIES

SUMMARY OF VECTOR ISSUES FROM 6/29/99 TO 9/15/99
SITE-SPECIFIC DETAILS ON VECTOR ACTIVITIES ARE PROVIDED IN THE OMM SECTION

ADULT MONITORING
The Quarterly Report on adult mosquito and midge monitoring prepared by UCR for District 7 and District 11 BMP sites is provided in Appendix D of this report.

DISTRICT 7

San Gabriel Valley Vector Control District
Monitoring
SGVVCD staff suspects that breeding is occurring in the Media Filter at the Foothill Maintenance Station (Site #74203) and the MCTT at the Via Verde P&R (Site #74206). However, due to lack of ladder access, no proper sampling has taken place this quarter. The flume housing for the Drain Inlet Insert at the Rosemead Maintenance Station (Site #73218) had retained water for much of this period. Mosquito larvae and pupae were discovered at this site on 8/5/99.

Abatement
An Altosid briquet was placed in the flume housing of the Drain Inlet Insert at the Rosemead MS (Site #73218) on 6/9/99. This prevented mosquito production until the briquet became buried by sediment in late July, severely reducing the briquets effectiveness. During monitoring visit of 8/5/99, the district field technician found in excess of 50 larvae per dip

including pupae. Due to the advanced stage of development of the immature mosquitoes, the technician concluded that physical control could not take place fast enough to prevent the emergence of adult mosquitoes. As a result, Golden Bear was applied to the flume housing. No abatement actions have been taken since 8/5/99.

Greater Los Angeles County Vector Control District

Monitoring

The monitoring effort of 6/29/99 showed two sites breeding mosquitoes: the Biostrip at the Altadena MS (Site #73211a) and the Bioswale at I-5/I-605 (Site #73224).

The monitoring effort of 7/6-7/99 showed several sites breeding mosquitoes: the Infiltration Basin at I-605/SR-91 (Site #73101), The Biostrip at the Altadena MS (Site #73211a) and the Bioswale at I-5/I-605 (Site #73224).

The monitoring effort of 7/13-16/99 showed that fewer BMPs contained standing water and that only three of showed evidence of breeding: the Media Filter at Termination P&R (Site #74204), the Bioswale at I-5/I-605 (Site #73224) and the Bioswale at I-605/Carson Del Amo (Site #73225). Some of these sites showed breeding activity, but were not abated as they appeared to be drying up quickly. The MCTT at Lakewood P&R showed breeding in individual sedimentation tubes.

The monitoring effort of 7/20-21/99 showed no breeding in any BMPs.

The monitoring effort of 7/27-29/99 showed only two sites with breeding substantial enough to require abatement: the Infiltration Basin at 605/91 (Site #73101) and the Biostrip at the Altadena MS (Site #73211a). Also, the MCTT at Lakewood P&R showed breeding in individual sedimentation tubes.

The monitoring effort of 8/3-4/99 showed breeding at only two (2) BMP sites: the Biostrip at the Altadena MS (Site #73211a) and the Bioswale at I-5/I-605 (Site #73224).

The monitoring effort of 8/10-11/99 showed that fewer BMPs contained standing water and that only two (2) of these showed evidence of breeding: the Biostrip at the Altadena MS (Site #73211a) and the Bioswale at I-5/I-605 (Site #73224). The MCTT at Lakewood P&R also showed evidence of breeding in individual sedimentation tubes. This appears to be a recurring problem as sampling for larvae in these tubes is difficult.

The monitoring effort of 8/16-18/99 showed breeding at only two (2) BMP sites; the spreader ditch of the Biostrip at the Altadena Maintenance Station (Site #73211a) and the energy dissipator of the Bioswale at I-5/I-605 (Site #73224).

The monitoring effort of 8/24-25/99 had three (3) BMPs showing evidence of breeding: the Multi-Chambered Treatment Train at Lakewood P&R (Site # 74208), the Oil/Water Separator at the Alameda MS (Site #74201) and the Bioswale at I-5/I-605 (Site #73224). The MCTT at Lakewood Park &Ride showed evidence of breeding in the sump area. The breeding encountered at the Oil/Water Separator is limited to a small area near the outlet and does not

appear to be the device itself. Breeding at the I-5/I-605 Bioswale is limited to the energy dissipator.

The monitoring effort of 9/1/99 showed breeding in two BMPs: the Oil/Water Separator at the Alameda MS (site #74201) and the energy dissipator of the Bioswale at the I-5/I-605 Interchange (site #73224).

The monitoring effort of 9/7/99 showed breeding in two BMPs: the Oil/Water Separator at the Alameda MS (site #74201) and the energy dissipator of the Bioswale at the I-5/I-605 Interchange (site #73224).

Abatement

7/1/99 – The Biostrip at the Altadena MS (Site #73211a) and the Bioswale at the I-5/I-605 (Site #73224) were treated with VectoLex™.

7/8/99 – The Infiltration Basin at I-605/SR-91 (Site #73101) and the Biostrip at the Altadena MS (Site #73211a) were treated with VectoLex™ or VectoBac™.

7/15/99 – The Bioswales at I-5/I-605 and I-605/Carson Del Amo (Sites #73224 and #73225) were treated with VectoBac™. One other site (the Media Filter at Termination P&R - Site #74204) was breeding, but water levels were low enough that abatement was not deemed necessary.

7/29-30/99 – The Biostrip at the Altadena MS (Site #73211a) and the Infiltration Basin at I-605/SR-91 (Site #73101) were treated with Golden Bear™.

8/5/99 – The Biostrip at the Altadena MS (Site #73211a) and The Bioswale at I-5/I-605 (Site #73224) were treated with VectoBac™.

8/12/99 – The Biostrip at the Altadena MS (Site #73211a) and The Bioswale at I-5/I-605 (Site #73224) were treated with VectoBac™ or Altosid™.

8/19/99 – The Biostrip at the Altadena MS (Site #73211a) and The Bioswale at I-5/I-605 (Site #73224) were treated with VectoBac™ or Altosid™.

8/25/99 – The Oil/Water Separator at Alameda MS (Site #74201) and The Bioswale at I-5/I-605 (Site #73224) were treated with Altosid™. The sump/stand pipe of the MCTT at Lakewood Park &Ride (Site #74208) was to be treated on 8/25/99. However, mosquito-proof netting was placed over the pipe, eliminating the need for abatement.

9/2/99 – The Oil/Water Separator at Alameda MS (Site #74201) and The Bioswale at I-5/I-605 (Site #73224) were treated with Altosid™.

9/8/99 – The Oil/Water Separator at Alameda MS (Site #74201) and The Bioswale at I-5/I-605 (Site #73224) were treated with Altosid™.

Los Angeles County West Vector Control District

Monitoring

The revised agreement was presented to the District Board of Trustees on 9/9/99. The service agreement with Los Angeles County West Vector Control District was received by Montgomery Watson on 9/14/99. The contract will be in force starting the week of 9/20/99.

DISTRICT 11

County of San Diego Vector Surveillance and Control

Monitoring

The monitoring effort of 7/5/99 showed breeding in Extended Detention Basin at I-5/SR-56 (Site #111101) and the Wet Basin at La Costa (Site #111104).

The monitoring effort of 7/19/99 showed breeding the Extended Detention Basin at I-5/SR-56 (Site #111101), the Media Filter at La Costa P&R (Site #112203), Wet Basin at La Costa (Site #111104) and the Media Filter at I-5/SR-78 P&R (Site #112204).

The monitoring effort of 7/26/99 showed breeding in the Media Filter at Kearny Mesa (#112201), Extended Detention Basin at I-5/SR-56 (Site #111101) and the Wet Basin at La Costa (Site #111104).

On 7/30/99 the CSDSVC requested that the following sites be inspected on a monthly basis rather than the current weekly basis:
I-15/SR-78, Extended Detention Basin
Carlsbad Maintenance Station, Infiltration Trench/Biofilter
I-5/Palomar Airport Road, Biostrip
SR-78/Melrose Drive, Bioswale
I-5/Manchester Avenue, Extended Detention Basin
These sites have been dry for some time. The monitoring frequency will revert back to a weekly schedule in the event of rainfall or contact from the consultants, DHS or Caltrans.

The monitoring effort of 8/2/99 showed breeding in the Extended Detention Basin at I-5/SR-56 (Site #111101) and the Wet Basin at La Costa (Site #111104).

The monitoring effort of 8/9/99 showed breeding in the Extended Detention Basin at I-5/SR-56 (Site #111101) and the Wet Basin at La Costa (Site #111104).

The monitoring effort of 8/16/99 showed breeding in the Extended Detention Basin at I-5/SR-56 (Site #111101), Media Filter at La Costa P&R (Site #112203).

The monitoring effort of 8/23/99 showed breeding in the Extended Detention Basin at I-5/SR-56 (Site #111101), Media Filter at La Costa P&R (Site #112203).

The monitoring effort of 8/31/99 showed breeding in the Media Filter at La Costa P&R (Site #112203).

Abatement

Thus far, CSDVSC has abated only two sites, the Infiltration Basin at La Costa (Site #111103) and the Wet Basin at La Costa (Site #111104). The BMP was treated with Altosid™ (a mosquito specific synthetic juvenile hormone) and Mosquito fish (*Gambusia affinis*) in June. Limited vector breeding is still visible, though the mosquito fish appear to be keeping mosquito levels down to a reasonable level. Site #111104 has been treated twice more (7/5 and 7/19) with 20 pounds of Bactimos™. CSDVSC has not recommended treatment of any other BMPs.

DEPARTMENT OF HEALTH SERVICES

The Department of Health Services has hired two vector biologist to coordinate and oversee the vector monitoring and abatement being carried out by the vector control districts. These biologists have visited all BMP sites and have been in contact with the vector control districts. A kickoff meeting was held on 7/16/99 to apprise the consultants and vector control district staff of the role to be played by DHS, and identify items requiring immediate action. Several tasks were identified and individuals were assigned to manage these tasks. An Abatement Practices Technical Report was available for distribution the week of 8/16/99. This memo identifies and delineates any detrimental effects which abatement practices may have upon water quality. A draft study plan for the BMP Mosquito Production Study is currently in review.

The sites monitored by each VCD is summarized in the following table:

Sites Monitored by Vector Control District

Location	BMP Type	Monitor Consultant	Vector Control District	Activities
DISTRICT 7				
I-605/SR-91	IB	MW/Law	GLACVCD	July 1: Mosquito larvae treated with VectoLex™. July 8: Mosquito larvae treated with VectoBac™ or VectoLex™. July 27/28: Mosquito breeding suspected; heavy grate prevents sampling; grate was replaced. July 30: Pupae found; inlet structure treated with Golden Bear (0.54 ounces).
I-210 East of Orcas	CDS	MW/Law	GLACVCD	N/A
I-210 East of Filmore	CDS	MW/Law	GLACVCD	N/A
I-5/I-605	EDB	BC	GLACVCD	None noted during routine inspection.
I-605/SR-91	EDB	BC	GLACVCD	None noted during routine inspection.
Paxton Park & Ride	MF	BC	GLACVCD	N/A
Metro MS	MCTT	BC	GLACVCD	N/A
Alameda MS	OWS	BC	GLACVCD	August 24: Breeding observed near outlet. August 25, September 2,8: Outlet treated with Altosid™.
Eastern MS	MF	BC	GLACVCD	None noted during routine inspection.
Foothill MS	MF	BC	SGVVCD	Breeding suspected; access ladder needed. Ladders installed August 24.
Termination Park & Ride	MF	BC	GLACVCD	Breeding observed in July; no abatement necessary.
Via Verde Park & Ride	MCTT	BC	SGVVCD	Breeding suspected; access ladder needed. Ladder installed August 24.
Lakewood Park & Ride	MCTT	BC	GLACVCD	June 17 and 22: Mosquito larvae treated with VectoLex™. July 14/15 and July 27/28: Breeding observed in individual sediment tubes. August 3/4 and 10/11: Evidence of breeding in individual sedimentation tubes noted. August 24: Breeding noted in sump area; mosquito-proof netting was placed over sump/stand pipe, eliminating the need for abatement.
Altadena	Bio Strip/IT	MW/Law	GLACVCD	July 1: Site treated with VectoLex™. July 8: Spreader ditch treated for mosquito larvae with VectoBac™ or VectoLex™. July 29: Pupae present; site treated with Golden Bear (1.62 ounces). August 3/4 and 10/11: Breeding noted at the site. August 5: Site treated with VectoBac™. August 12: Site treated with Altosid™ or VectoBac™. August 16-17: Breeding noted in spreader ditch. August 19: Spreader ditch treated with Altosid™ or VectoBac™. August 24: Spreader ditch dry.
Foothill	DII	MW/Law	SGVVCD	None noted during routine inspection.
LasFlores	DII	MW/Law	LA Co West	Anticipated execution of the service agreement is in the week of September 20.
Rosemead	DII	MW/Law	SGVVCD	June 9: Site treated with one Altosid briquette. August 5: Site contained in excess of 50 larvae/dip, including pupae; flume housing treated with Golden Bear (0.02 ounces). August 12: Flume housing dry; no treatment required.
I-605/SR-91	Bio Strip/Swale	MW/Law	GLACVCD	June 16 and 24: Swale treated for mosquito larvae with VectoLex™.
Cerritos MS	BioSwale	MW/Law	GLACVCD	June 16: Mosquito larvae treated with VectoLex™.
I-5/I-605	BioSwale	MW/Law	GLACVCD	June 16, 24 and July 1: Mosquito larvae treated with VectoLex™. July 15: Breeding observed in the dissipator; mosquito larvae treated with VectoBac™. August 3/4 and 10/11: Breeding observed. August 5: Energy dissipator treated with VectoBac™. August 12: Energy dissipator treated with Altosid™ or VectoBac™. August 16-17, 24: Breeding observed in energy dissipator.

Location	BMP Type	Monitor Consultant	Vector Control District	Activities
				August 19: Energy dissipator treated with Altosid™ or VectoBac™. August 25: Energy dissipator treated with Altosid™. September 2, 8: Site treated with Altosid™.
I-605/ Del Amo	BioSwale	MW/Law	GLACVCD	June 16: Mosquito larvae treated with VectoLex™. July 15: Breeding observed in the dissipator; mosquito larvae treated with VectoBac™.
DISTRICT 11				
I-5/SR-56	EDB	KLI	SD Co VC	June 7: Larvae and egg rafts of *Culex tarsalis* present in first riprap-retaining basin. June 15: 1st through 4th instar larvae and egg rafts of *Culex tarsalis* present in second basin. June 28: 1st and 2nd *instar Culex pipiens* larvae present at 0.5 larvae per dip in first basin. July 5: First riprap-retaining basin supporting larvae of *Culex tarsalis* (1st, 2nd, and 3rd instars) and *Culex pipiens* (3rd instars) at about 7 larvae per dip. July 19: Breeding of *Culex tarsalis* (2nd, 3rd, and 4th instars at 20 larvae/dip) observed in both the first and second riprap-retaining basins. July 26: *Culex tarsalis* breeding (2nd and 3rd instars at 5 larvae/dip) observed in first riprap-retaining basin; second riprap-retaining basin was dry. August 2: First riprap-retaining basin holding water and breeding *Culex tarsalis* (egg rafts and 1st and 2nd instars at 0.1 larvae/dip). August 9: First riprap-retaining basin holding water and breeding *Culex pipiens* (2nd and 3rd instars as well as pupae at 0.4 larvae/dip). No treatment necessary on either date. August 16: Standing water (10' x 10' x 6") in the first basin breeding *Culex pipiens* (1st & 2nd instars at 4.0 larvae/dip). August 23: Standing water in the deepest depressions in the first basin breeding *Culex tarsalis* (2nd, 3rd, and 4th instars) and *Culiseta incidens* (2nd instars) at 2.0 larvae/dip. September 7: Standing water in first and second basins breeding *Culex pipiens* (2nd and 3rd instars at 2.0 larvae/dip).
I-15/SR-78	EDB	KLI	SD Co VC	Basin has been consistently dry, so inspections have been suspended; inspection will resume with a rainfall event. July 19 and 26: site inspected (even though no rainfall event occurred).
I-5/La Costa (West)	IB	KLI	SD Co VC	June 1: One mosquito larva (third instar *Culex stigmatosoma*) found (0.1 larvae/dip). Signs of midge breeding observed the week of July 12; no treatment recommended. July 19 and 26: Standing water level decreasing; no mosquito breeding observed. August 2: Standing water noted. August 9: Site nearly dry. August 16, 23: Site dry. August 31: Standing water near inlet noted.
I-5/La Costa (East)	WB	KLI	SD Co VC	June 17: Mosquito-eating fish *Gambusia affinis* introduced into the pond; significant mosquito breeding observed at north end of pond; 1st through 4th instar *Culex tarsalis* larvae present; single chironomid midge larva collected. June 18: Additional *G. affinis* introduced into pond; pond treated with Bactimos pellets. June 22: *Culex tarsalis*, 1st and 2nd instars at 2 per dip, observed; treated with VectoBac™ Granules (BTI). June 28: *Culex tarsailis*, 1st through 4th instars at 1-10 per dip, observed. July 5: Site breeding *Culex tarsalis* (1st, 2nd, and 3rd instars at 10-15 larvae/dip); mosquito egg rafts present; treated with 20 pounds of Bactimos pellets. July 15: Midge and mosquito larvae observed by DHS. July 19: Site breeding *Culex tarsalis* (1st, 2nd, 3rd, and 4th instars at 5-10 larvae/dip); site treated with 20 pounds of Bactimos pellets (BTI). July 26: Site breeding *Culex tarsalis* (1st, 2nd, and 3rd instars at 0.5 larvae/dip); no treatement performed; breeding considered minor. July 19 and 26: Many *G. affinis* noted.

Location	BMP Type	Monitor Consultant	Vector Control District	Activities
				August 2: Site breeding *Culex tarsalis* (1st, 2nd, and 3rd instars at 0.3 larvae/dip). August 9: Site breeding *Culex tarsalis* (1st, 2nd, and 3-4th instars as well as pupae at 0.1 larvae/dip). No treatment necessary on either date. August 16, 23, 31 and September 7: No mosquito breeding noted.
I-5/Manchester (East)	EDB	KLI	SD Co VC	None noted during routine inspection.
Kearney Mesa MS	StormFilter (Perlite/Zeolite)	KLI	SD Co VC	July 5: Psychodid (Diptera: Psychodidae) larvae were collected; no mosquito breeding noted. July 26: Two *Culex pipiens* pupae (0.15 immatures/dip) found in the first chamber. August 2 and 9: Site contained standing water; Psychodid larvae noted; no action recommended (Psychodid flies are not considered vectors). August 16, 23: Standing water and a few psychodid larvae (Diptera: Psychodidae) observed. September 7: adult mosquitoes, *Culex stigmatosoma*, found in first chamber.
Escondido MS	MF	KLI	SD Co VC	July 5, 19, and 26: No evidence of mosquito breeding; larval and pupal psychodids (Diptera: Psychodidae) collected. As of July 26, west side of BMP continued to hold approximately 10 inches of standing water. August 2: West side of BMP contained approximately 5 inches of standing water; no evidence of mosquito breeding; larval and pupal psychodids (Diptera: Psychodidae) noted. August 9: Water level decreased; no mosquito breeding noted. August 16, 23: Water level decreasing; Psychodid larvae present. August 31: Psychodid larvae noted.
La Costa Park & Ride	MF	KLI	SD Co VC	Signs of midge breeding activity observed the week of July 12; no treatment recommended. July 19: Mosquito breeding (*Culex tarsalis*) found in three small depressions. July 26: Standing water in one depression; no mosquito breeding observed. August 16, 23: Small amounts of standing water in the three small depressions in the spreader trough observed. August 16: Depressions breeding *Culex pipiens* (1st, 2nd, and 3rd instars) at 5.0 larvae/dip. August 23: Depressions breeding *Culex pipiens* (1st. 2nd, and 3rd instars and pupae) at 3.0 larvae/dip. August 31: *Culex pipiens* (3rd instars) at 3.0 larvae/dip observed in a small depression in the spreader trough. September 7: Site dry.
SR-78/I-5 Park & Ride	MF	KLI	SD Co VC	On June 1: Small amount of water present in depression below pipe in the second chamber trough; one mosquito larva of *Culex pipiens* present. June 7: 1" of water in influent basin supporting *Culex pipiens* larvae and pupae at 0.5 per dip; ½ inch of standing water present in the second basin containing *Culex pipiens* larvae. June 15: Small depression in second basin containing *Culex pipiens* larvae and one chironomid midge larva. June 22: Standing water in small depression in the second basin; a few early instar larvae of *Culex pipiens* and *Culex tarsalis* present; one chironomid midge larva present. June 28: Site dry. Signs of midge breeding activity observed the week of July 12; no treatment recommended. July 19: Mosquito breeding (*Culex tarsalis*) in a small depression in the second basin.
Melrose Ave/SR-78	Bio Swale	KLI	SD Co VC	None noted during routine inspection.
I-5 Palomar Airport Road	Bio Swale	KLI	SD Co VC	August 16: Small amount of standing water noted (2' x 2' x 3/8"); one syrphid larva (Diptera: Syrphidae) noted in the water. August 23: No standing water present.
Carlsbad MS	Bio Strip/IT	KLI	SD Co VC	None noted during routine inspection.

ENVIRONMENTAL ISSUES

Dudek and Associates have initiated monthly biological monitoring activities at all District 7 and District 11 sites. The first two monthly monitoring reports (July and August) will be distributed, under separated cover, at the Quarterly Status Meeting. No specific issues have been identified since the last quarterly report. Brock Ortega, the project biologist, will be looking at wetbasin in District 11, and increase his monitoring of this site due to the potential for threatened and endangered species habitat.

WEATHER

Precipitation data for Los Angeles and San Diego for the months of December 1998 through September 1999 were obtained from NOAA (see Tables, below).

The data presented here is as a reference only. The actual rainfall at individual BMP sites will vary from the values given in the table. The data presented above for Los Angeles is as of 4:00 p.m. for the preceding 24 hours on the date indicated. For San Diego, is as of 5:00 p.m. for the preceding 24 hours.

December 1998

Los Angeles – Civic Center				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.29	16	0.0	1	0.01	16	0.0
2	0.0	17	0.0	2	0.08	17	0.0
3	0.01	18	0.0	3	0.0	18	0.0
4	0.01	19	0.02	4	0.01	19	Trace
5	0.0	20	0.0	5	0.46	20	0.02
6	0.21	21	0.0	6	0.09	21	Trace
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.0	8	0.0	23	0.0
9	0.0	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.0	26	0.0	11	0.0	26	0.0
12	0.0	27	0.0	12	0.0	27	0.0
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0	29	0.0	14	Trace	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0
		31	0.0			31	0.0

January 1999

Los Angeles – Civic Center				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.0
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.12	4	0.0	19	0.12
5	0.0	20	0.0	5	0.0	20	0.08
6	0.0	21	0.0	6	0.0	21	0.0
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.0	8	0.0	23	0.0
9	0.0	24	0.37	9	0.0	24	0.70
10	0.0	25	0.42	10	0.0	25	0.23
11	0.0	26	0.30	11	0.0	26	0.31
12	0.0	27	0.0	12	0.0	27	NA
13	0.0	28	0.0	13	0.0	28	NA
14	0.0	29	NA	14	0.0	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0
		31	0.56			31	0.06

February 1999

Los Angeles – Civic Center				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.0
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.34	19	0.0
5	0.17	20	0.0	5	0.22	20	0.0
6	0.0	21	0.0	6	Trace	21	0.0
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.0	8	0.02	23	0.0
9	0.27	24	0.0	9	0.0	24	0.0
10	0.12	25	0.0	10	0.09	25	0.0
11	0.0	26	0.0	11	0.0	26	0.0
12	0.0	27	0.0	12	0.0	27	0.0
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0			14	0.0		
15	0.0			15	Trace		

March 1999

Los Angeles – Civic Center				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.02
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.07	19	0.0
5	0.0	20	0.22	5	0.0	20	Trace
6	0.0	21	0.0	6	0.0	21	0.0
7	0.0	22	0.0	7	0.11	22	Trace
8	0.0	23	0.0	8	0.0	23	0.0
9	0.10	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.36
11	Trace	26	0.08	11	NA	26	0.20
12	0.0	27	0.0	12	0.0	27	NA
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0	29	0.0	14	0.0	29	0.0
15	Trace	30	0.0	15	0.16	30	0.0
		31	0.0			31	Trace

April 1999

Los Angeles – Downtown				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.31	16	0.0
2	0.03	17	0.0	2	0.28	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.11	19	0.0
5	0.0	20	0.0	5	0.0	20	0.0
6	0.73	21	0.0	6	Trace	21	0.0
7	0.39	22	0.0	7	0.33	22	NA
8	0.0	23	0.0	8	0.0	23	Trace
9	0.08	24	0.01	9	0.01	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.28	26	0.0	11	Trace	26	0.0
12	1.06	27	0.0	12	0.58	27	0.0
13	0.0	28	0.0	13	0.0	28	Trace
14	0.0	29	0.0	14	0.0	29	Trace
15	0.0	30	Trace	15	0.0	30	0.0

May 1999

Los Angeles – Downtown				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.0
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.0	19	0.0
5	0.0	20	0.0	5	0.0	20	0.0
6	0.0	21	0.0	6	0.0	21	Trace
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.02	8	0.0	23	0.06
9	0.0	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.0	26	NA	11	0.0	26	0.0
12	0.0	27	NA	12	0.0	27	0.0
13	0.0	28	0.0	13	Trace	28	0.0
14	0.0	29	NA	14	0.0	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0
		31	0.0			31	0.0

June 1999

Los Angeles – Downtown/USC				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	Trace	16	0.0
2	0.58	17	0.0	2	0.02	17	0.0
3	0.21	18	0.0	3	Trace	18	0.0
4	0.0	19	0.0	4	0.02	19	0.0
5	0.0	20	0.0	5	0.0	20	0.0
6	0.0	21	0.0	6	0.0	21	0.0
7	0.0	22	0.0	7	0.0	22	0.0
8	NA	23	0.0	8	0.0	23	0.0
9	0.0	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.0	26	0.0	11	0.0	26	0.0
12	0.0	27	0.0	12	0.0	27	0.0
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0	29	0.0	14	0.0	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0

July 1999

Los Angeles – Downtown/USC				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.0
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.0	19	0.0
5	0.0	20	0.0	5	0.0	20	0.0
6	0.0	21	0.0	6	0.0	21	0.0
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.0	8	Trace	23	0.0
9	0.0	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.0	26	0.0	11	0.0	26	0.0
12	0.0	27	0.0	12	0.0	27	0.0
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0	29	0.0	14	0.0	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0
		31	0.0			31	0.0

August 1999

Los Angeles – Downtown/USC				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16	0.0	1	0.0	16	0.0
2	0.0	17	0.0	2	0.0	17	0.0
3	0.0	18	0.0	3	0.0	18	0.0
4	0.0	19	0.0	4	0.0	19	0.0
5	0.0	20	0.0	5	0.0	20	0.0
6	0.0	21	0.0	6	0.0	21	0.0
7	0.0	22	0.0	7	0.0	22	0.0
8	0.0	23	0.0	8	0.0	23	0.0
9	0.0	24	0.0	9	0.0	24	0.0
10	0.0	25	0.0	10	0.0	25	0.0
11	0.0	26	0.0	11	0.0	26	0.0
12	0.0	27	0.0	12	0.0	27	0.0
13	0.0	28	0.0	13	0.0	28	0.0
14	0.0	29	0.0	14	0.0	29	0.0
15	0.0	30	0.0	15	0.0	30	0.0
		31	0.0			31	0.0

September 1999

Los Angeles – Downtown/USC				San Diego			
Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)	Day	Precip. (Inches)
1	0.0	16		1	0.0	16	
2	0.0	17		2	0.0	17	
3	0.0	18		3	0.0	18	
4	0.0	19		4	0.0	19	
5	0.0	20		5	0.0	20	
6	0.0	21		6	0.0	21	
7	0.0	22		7	0.0	22	
8	0.0	23		8	0.0	23	
9	0.0	24		9	Trace	24	
10	0.0	25		10	0.0	25	
11	0.0	26		11	0.0	26	
12	0.0	27		12	0.0	27	
13	0.0	28		13	0.0	28	
14	0.0	29		14	0.0	29	
15	0.0	30		15	0.0	30	

Robert Bein, William Frost & Associates
PROFESSIONAL ENGINEERS, PLANNERS & SURVEYORS

JN: 34123,34218

STORMWATER PLANNING SERVICES
CONTRACT NO. 43A0004A
Meeting Minutes

ISSUE VERSION: Draft

MEETING NO.: 6
DATE: 9/30/99
TIME: 9:30 am
LOCATION: District 7, Rm 416

SUBJECT: Quarterly Status Meeting No. 6

Prepared by: S. Taylor

Approved by:
(Signature)

Date Prepared: 10/7/99

Attendee Names / Company

Rich Horner/NRDC
Chris May/NRDC
Rick Graff/SD BayKeeper
John Barth/SD BayKeeper
Steve Fleischli/SM BayKeeper
Bruce Reznik/SD BayKeeper
Jeremy Johnstone/USEPA (Phone, partial)
Everett DeLano/NRDC (Phone, partial)
Steve Borroum/Caltrans
Brian Currier/UCD
Doug Failing/Caltrans
Peter Van Riper/Caltrans
Richard Gordon/Caltrans
Cid Tesoro/Caltrans
Sayra Ramos/Caltrans
Bob Wu/Caltrans
Emilo Veramontes/Caltrans
Bill Evans/Caltrans

Attendee Names / Company

Dean Messer/LWA
Anna Lantin/RBF
Scott Taylor/RBF
Trevor Smith/RBF
Ed Othmer/Law
Bill Whittenberg/RBF
Ann Walker/RBF
Brock Ortega/Dudek
Matt Zapala/KLI
Pat Kinney/KLI
Gary Freidman/MW
Steve Briniger/MW
Bob Finn/BC
Doug Robison/BC
Alan Batdorf/BC
Mike Barrett/RBF/UT
Mark Moser/MW

Copies To:

File

The following items presented summarize the substantive items discussed or issues resolved at the above meeting to the best of the writer's memory.

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ITEM	DESCRIPTION	STATUS	OPENED	DUE	ACTION FOR:
01	The Plaintiffs noted that there was some disagreement over the meeting minutes for the last quarterly status meeting. BayKeeper asked if the primary issues could be summarized at the end of the meeting to make sure there was agreement. RBF agreed to provide a summary.	FYI			
02	BayKeeper asked that the La Costa Infiltration basin be added as an agenda item (11a). NRDC asked that the cost estimate issue also be added as an agenda item (11b), and SM BayKeeper asked that the North Hollywood site be added to the agenda (11c). Agenda Item 11 was taken first at the Plaintiffs request.	FYI			
03	Agenda Item 11(non-stormwater issues): EPA asked that the table indicating the non-stormwater inspection results be updated. The EPA also wanted an update from the Districts as to their investigation into the source of the non-stormwater discharges at each site. Caltrans responded that the reports can be produced in the timeframe needed by the Plaintiffs (monthly). It was agreed that the format for the reports would be consistent between the Districts, and the District 7 format would be shared with District 11. The reports will be available to coincide with the bi-weekly status calls.				RBF/District 11/Distric 7
04	Agenda Item 11 (con't): NRDC noted that the OMM manual needs to be updated to include the non-stormwater inspections. Caltrans agreed. SD BayKeeper requested that all of the maintenance stations in District 11 be inspected for non-stormwater discharges similar to that agreed to in District 7. District 11 will respond to BayKeeper on this issue. NRDC noted that at the Rosemead Maintenance Station, good housekeeping has lapsed in the past with washout of sweepers in uncontrolled areas. Caltrans noted that Headquarters will be undertaking compliance (SWMP) reviews in District 7 this winter at the request of the District. The Plaintiffs requested copies of the compliance review reports. Caltrans and the Plaintiffs to discuss further the timing of the delivery of the reports to the Plaintiffs.				RBF/Caltrans/Plaintiffs
05	Agenda Item 11a (La Costa Infiltration Basin): Caltrans noted that it is in the process of developing a formal response to EPAs letter and NRDC's letter on this subject. SD BayKeeper asked if the site would be monitored this winter. Caltrans indicated this would be addressed in the letter. SD BayKeeper also asked about the notes from the technical conference call held on 8/25/99. Caltrans indicated that they had discussed the comments from R. Horner and would finalize the notes.				Caltrans D 11
06	Agenda Item 11b (Construction Cost Estimates): Caltrans indicated that the Consultants are working on finalizing the construction costs (raw construction costs for those sites that are complete). A conference call to discuss the costs, the format of the information, and the schedule for the cost workgroup has been set for October 15, at 9am. BayKeeper and EPA requested a written response to their letter on this issue.				All/Caltrans
07	Agenda Item 11c (North Hollywood site): SM Baykeeper requested to discuss this issue. Horner (NRDC) states that this issue is controversial and that he does not want this site demolished, instead "table it." Caltrans suggested that since this is a District 7 issue and outside of the pilot program, it should be discussed separately, Plaintiffs agreed. District 7 to discuss issue with the Plaintiffs.				SM BayKeeper/ Caltrans District 7
08	Agenda Item 3 (Design Schedule): Caltrans reviewed design/construction schedule for CDS units and	FYI			

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ITEM	DESCRIPTION	STATUS	OPENED	DUE	ACTION FOR:
	Paxton and Metro filters. The District noted that the schedule was predicated on not having challenges to the bid or significant rain delays. The Plaintiffs expressed concern about the schedule, noting that there is very little latitude to ensure the new pilots are ready to monitor by the Fall 2000.				
09	Agenda Item 4 (Vector Issues); LWA reviewed the program, two components: Adult and larval monitoring. Caltrans and DHS to determine whether adult monitoring will continue after this year. To date there does not appear to be a significant difference between control and study sites for adult mosquito population. Reviewed abatement that has occurred at existing sites this past summer. Plaintiffs asked that Bill Walton further discuss the control site and treatment relationship in his report. DHS has completed a study plan which has tentatively been accepted by Caltrans and will be distributed to the Plaintiffs in the month of October. DHS has also done a survey of BMPs across the country relative to abatement/breeding issues. This report of findings should be available in December 1999.	FYI			
010	Agenda Item 5 (Biological Issues): RBF/Dudek reviewed the biological reports (July/August). It was noted that Caltrans is preparing a letter to the FWS to note that the biofilters at Palomar Airport Road and Carlsbad MS may attract the salt marsh skipper, an endangered species. A similar letter will be prepared if habitat suitable for T&E species is noted at the La Costa Wet basin. It was noted that a net may be installed at the La Costa infiltration basin to preclude waterfowl from transferring fairy shrimp to the site. It was decided that biological costs should be kept separate, but not included in the O&M cost for the pilots at this time.	FYI			
011	Agenda Item 6 (Device Specific Issues): MW reviewed the changes to the 605/91 strip monitoring equipment requested by the CHP, and modifications to energy dissipators at the Cerritos MS, 5/605 605/91 and 605 Del Amo swales to preclude ponding. Drain plugs were not considered since sediment could accumulate and plug the drain holes. The monitoring equipment at the Los Flores MS was moved to accommodate a request from Caltrans personnel	FYI			
012	Agenda Item 7 (Saltgrass Report): RBF reviewed the status of the saltgrass and indicated that all sites have achieved the coverage required by the MID and are therefor, 'operational' and ready for monitoring as of October 1. The Plaintiffs requested that the recommendations contained in the Peer Review Report be incorporated into the MID. Caltrans indicated the recommendations would be incorporated, or an explanation given as to why the recommendation is not appropriate. Caltrans noted that non-native species would not be used for the biofilters.	New			RBF
013	Agenda Item 8 (OMM Update): RBF reviewed the changes to the OMM plan, and noted the revision schedule. The OMM plan has been updated, and the monitoring consultants have the proper direction to begin monitoring. Actual reproduction of the Volumes may not occur until about the first of November to ensure that changes are cross checked and allow time for reproduction.	New			RBF
014	Agenda Item 8 (con't): The Plaintiffs questioned when the mid term report, noted in Volume 1 of the OMM would be available. Caltrans responded that the current reporting (data available on the web, the	New			Caltrans

ITEM	DESCRIPTION	STATUS	OPENED	DUE	ACTION FOR:
	bi-weekly reports and the quarterly reports) fulfill this purpose. SD BayKeeper indicated that Caltrans must also evaluate whether and to what extent BMP retrofit is appropriate per the requirements of the Consent Decree. Caltrans responded that this question was the primary focus of the San Diego Water Quality Control Control Study (SDWQCS). The Plaintiffs do not feel that they have been a part of the SDWQCS and are 'out of the loop'. Caltrans indicated that the study has been in a hiatus pending the appointment of full time staff persons both in the District and at Headquarters. Caltrans agreed to meet with the Plaintiffs soon on the study. It was agreed that the mid-term report was an annual status report, presenting the study findings to date, and that a good job had been done of providing this information.				
015	Agenda Item No. 9 (Water Quality Monitoring Preparedness): The monitoring status for each Consultant (MW and BC in District 7, KLI in District 11) was reviewed. Each consultant confirmed readiness to monitor beginning October 1. SD BayKeeper noted that they take exception to the number of storms required for each site in District 11. It was agreed that pending the number of storms that could be collected this winter, the issue may be moot.	FYI			
016	Agenda Item No. 10 (Database): The database was reviewed and demonstrated for the Plaintiffs. Both the executable form and the data provided on the internet were reviewed. The suggestion was put forth to allow sorting on an individual site. The Plaintiffs noted that the OMM cost in District 7 was significantly higher than in District 11. It was agreed to further monitor this trend.	New			RBF
~~016~~017	Agenda Item No. 12 (Closing): The next bi-weekly conference call was set for October 21, 1999 at 10 am. It was agreed that the bi-weekly calls would occur on Thursdays from this point forward. The next Quarterly Status Meeting was set for December 15th.	FYI			

APPENDIX A: MAINTENANCE INDICATOR DOCUMENT

CALTRANS BMP RETROFIT PILOT PROGRAM

BMP MAINTENANCE INDICATORS

The following specific thresholds are for specified and implied criteria which "trigger" maintenance activities for specific BMPs. The maintenance activity shown is for those times when the field measurement exceeds the maintenance indicator. These thresholds do not preclude taking other actions needed to mitigate the given thresholds or taking actions needed to mitigate unanticipated problems. These indicators are not only for the BMP pilot program, but they are also considered representative of the long-term maintenance requirements for the BMPs.

This document covers routine maintenance. There may be occasions where emergencies arise, such as accidents, toxic spills, or other incidents, where critical response is needed. On those occurrences, Caltrans crews will respond to the emergency, on a priority basis and, if necessary, the BMP will be taken out of service until the BMP can be restored. The goal for such critical situations is to have the BMP back into service within 30 days.

The time period noted, for completion of any maintenance activity, is a goal that will depend on weather, access to the BMP, personnel and equipment availability.

BIOFILTER – STRIPS and SWALES

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Uniform sheet flow over length of strip and across swale invert	Evidence of significant channeling or ponding	Visual inspection of erosion or major portions of flow discharge across strip/swale	Monthly, during target storms in the wet season	Correct channelized or ponded areas using additional fill and vegetation and/or by removing accumulated sediment. Target completion time is within 10 days.	None
Height of vegetation	Average plant height exceeds 10 inches	Visual inspection of vegetation throughout strip/swale	In October , and January and monthly during dry season	Cut plants to a average height of 6 inches and remove trimmings. Target completion within 10 days.	Palomar Airport Road Site: maximum average height is 13 inches; trim to 9 inches
Assess adequate vegetative cover	Less than 90 percent coverage in strip	Visual inspection of strip/swale	Assess quantity needed in May each	Order appropriate amount of sod. Re-	None

BIOFILTER – STRIPS and SWALES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	invert/swale or less than 70 percent on swale side slope		year	sod barren spots during November. Irrigate until soil moisture is sustained by rain or sod becomes established.	
Residence time is less that design criteria	Residence time is less than design criteria	Measure mean residence times in swale using protocol in OMM plan. Calculate residence time for design storm.	Once per year during target storm	Assess the cause of the problem. As soon as weather and moisture conditions allow, take corrective action. If sediment is the cause, in September, remove and dispose of accumulated sediment. Regrade to restore flow gradient. Resod by November 1	Swales only Cerritos MS – 4 min 605/91 – 9 min 5/605 – 7 min 605/Carson – 9 min Palomar – 14 min Melrose – 15 min
Inspect for debris accumulation	Debris or trash present	Visual observation	Monthly	Remove trash and debris. Target completion period within 10 days.	None
Inspect for accumulated sediment	Sediment at or near plant height, channeling of flow, inhibited flow due to change in slope	Visual observation	Monthly during wet season	Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to	None

BIOFILTER – STRIPS and SWALES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				change the flow gradient, remove sediment, conduct sediment characterization according to OMM Plan Vol II, dispose of sediment, and replant. Regrade to design specification and replant swale/strip with sod. If regrading is necessary, the process should start near May 1. Resod strip/swale in Nov. Target completion period within 10 days.	
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm	None

BIOFILTER – STRIPS and SWALES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the burrows to prevent seepage, erosion and leakage. • Where voles are present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate	

BIOFILTER – STRIPS and SWALES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent seepage, erosion and leakage.	
Inspect for possible endangered species, threatened species and species of special concern within the BMP maintenance perimeter	Evidence of ponding, emergence of wetland or woody vegetation, shrubs, dwarf plantain, or burrowing animal damage. Presence of logs, woodpiles rocks, or large debris.	Visual observation	Weekly, during the wet season	• Remove woody vegetation, shrubs, dwarf plantain, pickleweed, woody wetland vegetation[4], and large debris within strip/swale within 10 days. • Correct ponded areas using sand fill within 3 days. • If burrows are found between Mar 1 and Aug 30, a biologist needs to confirm that no birds are nesting in the burrow before sealing the hole.	Vulnerable sites are: SR-78/Melrose I-5/Palomar Airport Rd

BIOFILTER – STRIPS and SWALES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				• At vulnerable sites, remove debris, woodpiles etc. within 10 days.	
Inspect for standing water	Water accumulation in spreader ditch or any structure	Standing water in spreader ditch or any structure	Annually, May 1	Where gravity draining is possible, drain the standing water	None
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees or woody vegetation, fence damage, etc.	Visual observation	Monthly	Take action as needed to correct problems. Target completion period within 30 days.	None

DRAIN INLET INSERTS – STREAM GUARD[3]
Preventive Maintenance and Routine Inspections

For drain inlet inserts, replacement of insert is specified as part to the testing portion of the BMP pilot program and deference is to replacement interval will be given to the testing portion of the program.

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Sediment removal	Sediment more than 6-inches	Visual inspection of sediment collected within insert	• Before each target storm event • Weekly during extended wet periods • Monthly during periods of dry weather	Replace insert. Target completion period within 10 days.	None
Inspect for debris/trash	Sufficient debris/trash that could interfere with proper functioning of insert	Visual observation	• Before and once during each target storm event • Weekly during extended wet periods	Remove and dispose of debris/trash. Target completion period within 1 day.	None
Oil and grease removal	Evidence of oily sheen in insert or downstream monitoring vault	Visual observation	During each target storm event and monthly during the dry season	Within 10 working days, replace oil absorbent polymer	None
Inspection for structural integrity	Improper installation, rips, tears, or other loss of structural integrity	Visual observation	Monthly	Replace insert or immediately consult with design engineer to develop a course of action, effect repairs within 10 working days	None

DRAIN INLET INSERTS – FOSSIL FILTER[3]
Preventive Maintenance and Routine Inspections

For drain inlet inserts, replacement of insert is specified as part to the testing portion of the BMP pilot program and deference is to replacement interval will be given to the testing portion of the program

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for debris/trash	Sufficient debris/trash that could interfere with proper functioning of insert	Visual observation	• Before and once during each target storm event • Weekly during extended wet periods • Monthly during the dry season	Remove and dispose of debris/trash. Target completion period within 1 day.	None
Oil and grease removal	Absorbent granules dark gray, or darker, or unit clogged with sediment.	Visual observation	• At the end of each target storm event • Weekly during extended wet periods • Monthly during the dry season	Replace Fosil Filter™ trough within 10 working days.	None
Inspection for structural integrity	Broken or otherwise damaged insert	Visual observation	Monthly	Replace insert or immediately consult with design engineer to develop a course of action, effect repairs within 10 working days	None

EXTENDED DETENTION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Drain time is 72 hours for design volume	Less than 48 hours or more than 72 hours for full basin	Determine drain time based on effluent flow meter activity or visual observation	Immediately after each target storm	• If time too long, open gate to discharge remaining volume, within 1 day. Per direction from design engineer, modify holes on standpipe after basin drains, within 30 days • Remove and dispose of debris/trash from outlet/outlet screen, within 10 days.	• Does not apply to District 7 Extended detention Basins • Clean rip-rap and standpipes in District 7
Basin side slope planted for erosion protection and planted invert	Average plant height greater than 18-inches	Visual observation and random measurements through out the side slope area	Monthly	Cut vegetation to an average height of 12-inches and remove trimmings. May cut to 8 inches after July 1. Target completion period within 30 days Do not cut more than four times per year,	None
Inspect for adequate vegetative cover	Less than 70 percent coverage on invert and	Visual observation	October each year	Hydroseed barren spots by Nov 1	

EXTENDED DETENTION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	side slopes				
Inspect for possible vector harborage	Standing water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment	None
Inspection for trash and debris at inlet and outlet structures	Debris/trash present	Visual observation	Monthly and before every target storm	Remove and dispose of trash and debris Target completion period within 10 days.	None
Inspection for sediment management and characterization of sediment for removal	• Sediment depth averages 18-inches or 10 percent of basin volume which ever is less • Any parameter concentration (See Table 5.2, Vol II) exceeds 50% of Title 22 TTLC. Or, if the parameter concentration falls between 10X STLC and TTLC, is less than 50% TTLC, and the WET results	• Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth • Sample according to OMM plan and send samples to lab	June 1 each year	Remove and dispose of sediment. Regrade and revegetate if vegetation coverage drops below 70 percent. Revegetate with seed as required by threshold on Nov. 1	None

EXTENDED DETENTION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	exceed 50 % of the STLC value.				
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the burrows to prevent	None

EXTENDED DETENTION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				seepage, erosion and leakage. • Where voles are present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent seepage, erosion and leakage.	
Inspect for possible endangered species, threatened species and species of special concern. within the BMP maintenance perimeter.	Evidence of ponding, emergence of wetland or woody vegetation, shrubs, dwarf plantain, or burrowing animal damage. Presence of logs, woodpiles, rocks,	Visual observation	Weekly, during the wet season	• Remove woody vegetation, shrubs, dwarf plantain, pickleweed and woody wetland vegetation[4] in the basin within 10 days.	Vulnerable sites are: I-5/SR56 I-5/Manchester I-15/SR-78

EXTENDED DETENTION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	or large debris.			days. • Remove debris, woodpiles etc. within 10 days. • Correct ponded areas using sand fill • For vulnerable sites, on Mar 1, deploy stakes with mylar strips and place scarecrow device around BMP. • If burrows are found between Mar 1 and Aug 30, a biologist needs to confirm that no birds are nesting in the burrow before sealing the hole.	
Inspect for standing water	Water accumulation in any structure or other location within the basin	Standing water in any structure or other location within the basin	Annually, May 1	Where gravity draining is possible, drain the standing water	None

EXTENDED DETENTION BASINS

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 10 working days, take corrective action. Consult engineers is immediate solution is not evident.	None

INFILTRATION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
72 hour infiltration of design volume	Evidence of ponding water after 72 hours	Evaluation of water level within basin using data logging bubbler or visual observation of basin for evidence of ponding water	72 hours after target storm event	Remove sediment, scarify invert and revegetate before November 1. If problem persists, immediately notify engineer. Undertake investigation for course of action to achieve acceptable infiltration rate or other acceptable solution. If unable to achieve acceptable infiltration rate or implement alternative solution then move to decommission	None
Vegetation of basin invert and side slopes	Plant height exceeds 12 inches	Visual observation and random measurements through out the side slope and invert area	Monthly	Cut vegetation to a height of 6 inches and remove cuttings. Target completion period within 30 days.	None
Inspect for possible vector harborage	Standing water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment	None
Inspect for standing water	Water accumulation in any structure or other location within the	Standing water in any structure or other location within the	Annually, May 1	Where gravity draining is possible, drain the standing	None

INFILTRATION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	basin	basin		water	
Inspection for trash and debris at inlet structures	Debris/trash present	Visual observation	Monthly	Remove and dispose of debris/trash. Target completion period within 10 days.	None
Inspection for sediment management	Sediment accumulation greater than 18-inches or 10 percent of basin volume which ever is less	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	June 1 each year	Remove, characterize and dispose of sediment. Regrade and revegetate if vegetation coverage drops below 70 percent. Revegetate with seed as required by threshold on Nov. 1	None
Inspection and characterization for sediment removal	Any parameter concentration (See Table 5.2, Vol II) exceeds 50% of Title 22 TTLC. Or, if the parameter concentration falls between 10X STLC and TTLC, is less than 50% TTLC, and the WET results exceed 50 % of the STLC value.	Sample according to OMM plan and send samples to lab	May 1 each year	Remove and dispose of sediment regrade basin floor to ensure proper drainage. Revegetate on November 1 if coverage falls below 70%.	None
Vegetation coverage inspection	Coverage falls below 70 percent	Visual observation	During month of September	Plant during month of November	None

INFILTRATION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the burrows to prevent seepage, erosion and leakage. • Where voles are	None

INFILTRATION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent seepage, erosion and leakage.	
Inspect for possible endangered species, threatened species and species of special concern within the BMP maintenance perimeter.	Evidence of ponding, emergence of wetland or woody vegetation, shrubs, dwarf plantain, or burrowing animal damage. Presence of logs, woodpiles, rocks, or large debris.	Visual observation	Weekly, during the wet season	• Remove woody vegetation, shrubs, dwarf plantain, pickleweed and woody wetland vegetation[4] in the basin within 10 days. • Remove debris, woodpiles etc. within	None

INFILTRATION BASINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				10 days. • Correct ponded areas using sand fill. If burrows are found between Mar 1 and Aug 30, a biologist needs to confirm that no birds are nesting in the burrow before sealing the hole.	
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 30 working days, take corrective action. Consult engineer if immediate solution is not evident.	None

INFILTRATION TRENCHES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Design infiltration rate	Infiltration rate falls below 90 percent of design rate	Calculate infiltration rate with pressure transducer or measure in observation well	After each target storm	Immediately notify engineer. Undertake investigation for course of action to achieve acceptable infiltration rate. If unable to achieve acceptable infiltration then BMP operations cease.	Carlsbad MS – 1.2 in/hr Altadena MS – 1.5 in/hr
Inspect for possible vector harborage	Standing surface water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment	None
Inspection for trash and debris at inlet and outlet structures	Trash/debris present	Visual observation	Monthly	Remove and dispose of trash and debris. Target completion period within 10 days.	None
Inspect for sediment accumulation	Visible sediment	Visual inspection of the stone aggregate, no sediment should be visible at the top of the trench.	Monthly during the dry season After every storm greater than 0.5-inches	Remove top layer of trench, silt, filter fabric and stone, wash stone and reinstall fabric and stone into trench	None

INFILTRATION TRENCHES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the burrows to prevent seepage, erosion and leakage. • Where voles are	None

INFILTRATION TRENCHES
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent seepage, erosion and leakage.	
Inspect for standing water at end of wet season	Spreader ditch contains water following the wet season (i.e., June 1 through September 30)	Visual observation	May 1 each year	Remove spreader ditch bypass plug during first week of dry season to allow water to drain into infiltration trench. Remove bypass drain blockage monthly.	Bypass plug will be installed throughout the wet season
Inspect for accumulation of	Spreader ditch contains sediment and	Visual observation	Annually, during the first week of the dry	Remove collected sediment and debris	None

INFILTRATION TRENCHES

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
sediment and debr is in biofiltration strip spreader ditch	debris following the wet season (i.e., June 1 through September 30)		season	from the spreader ditch.	
General Maintenance Inspection	Inlet structures, outlet structures, filter fabric or other features damaged, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 30 working days, take corrective action. Consult engineer if immediate solution is not evident.	None

MEDIA FILTERS – PERLITE/ZEOLITE

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Design flow rate through canisters: 15 gpm per canister	Less than 13 gpm flow rate per canister, measured collectively on a per vault basis	Evaluate peak and average flow rates drain time from inlet and outlet flow data loggers or staff gage within vaults	During one storm per month during wet season	Within 10 working days or as weather conditions permit, back flush canisters and remove sediment in the vault. If back flushing does not restore flow through rate, replace canisters.	None
Inspect for sediment accumulation in pre-treatment sedimentation chamber	Maximum 12-inches, or Any parameter concentration (See Vol II) exceeds 50% of Title 22 TTLC. Or, if the parameter concentration falls between 10X STLC and TTLC, is less than 50% TTLC, and the WET results exceed 50 % of the STLC	Measure with appropriate device Characterize sediment by sampling according to OMM plan Vol II	Measure sediment depth monthly during period of extended wet weather. Characterize sediment annually on May 1	Remove sediment within 10 days during wet season, characterize sediment and dispose of the sediment within 30 days If sediment characterization exceeds maintenance indicator, remove and dispose of sediment.	

MEDIA FILTERS – PERLITE/ZEOLITE
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	value.				
Inspect for minor maintenance	Per manufacture's guidelines	None	Monthly	Flush underdrains and other maintenance per manufacturer's guidelines.	None.
Manufacturer's recommended major maintenance	Per manufacture's guidelines	Per manufacture's guidelines	Annually, May 1	Replace canisters, remove sediment and other maintenance per manufacturer's guidelines	None
Inspection for trash and debris at inlet and outlet structures and within vaults	Trash/debris present	Visual observation	Weekly during the wet season and monthly during the dry season	Remove and dispose of trash and debris. Target completion period within 1 day during wet season and 10 days during dry season.	None
Inspect for vector harborage	Standing water for more than 72 hours	Visual Observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment. Renew vector control briquettes every 3 months.	None
Inspect for standing water	Water accumulation in any structure or other location within the filter	Standing water in any structure or other location within the filter	Annually, May 1	Where gravity draining is possible, drain the standing water	None
General Maintenance Inspection	Inlet structures, outlet structures, vault,	Visual observation	Monthly	Within 30 working days, take corrective	None

MEDIA FILTERS – PERLITE/ZEOLITE
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	piping, or other features damaged and for graffiti or vandalism			action. Consult engineer if immediate solution is not evident.	

MEDIA FILTERS – SAND

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Design filter loading rate of 0.0545 gpm/sf (10.5 ft/d), or Drain time of 48 hours	Loading rate drops below 9 ft/d or Drain time exceeds 48 hours	Use staff gage in vault to measure loading rate, or Evaluate peak and average loading rates from inlet and outlet flow data loggers or.	During one storm event per month if staff gage is used. After one storm event per month during wet season	Remove sediment, trash and debris., remove top 2 inches of media and dispose of sediment. Restore media depth to 18 inches when overall media depth drops to 12 inches. Target completion period within 10 days. If problem persists, consult with engineer.	None.
Inspect for sediment accumulation in sedimentation chamber	Maximum 12-inches, or Any parameter concentration (See Vol II) exceeds 50% of Title 22 TTLC. Or, if the parameter concentration falls between 10X STLC and TTLC, is less than	Measure with appropriate device Characterize sediment by sampling according to OMM plan Vol II and send samples to lab	Measure sediment depth monthly during period of extended wet weather. Characterize sediment annually on May 1	Remove sediment within 10 days during wet season, characterize sediment and dispose of the sediment within 30 days If sediment characterization exceeds maintenance indicator, remove and dispose of sediment.	

MEDIA FILTERS – SAND
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	50% TTLC, and the WET results exceed 50 % of the STLC value.				
Inspect for vector harborage	Standing water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment. Renew vector control briquettes every 3 months or as recommended by the VCD	None
Inspection for trash / debris at inlet and outlet structures and on media surface	Trash and debris present	Visual observation	Weekly during the wet season and monthly during the dry season	Remove and dispose of trash and debris. Target completion period within 1 day during wet season and 10 days during dry season.	None
Inspect pumps for proper functioning	Pump does not operate	Energize pump to see if water is discharged	September or after one month of inactivity during the wet season	Make assessment to determine if problem is electrical or mechanical. Take appropriate action. Replace pump if needed. Target completion time is 10 days (keep one pump	District 7 filters only

MEDIA FILTERS – SAND
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				in storage as back-up)	
Inspect pumps for serviceability and periodic maintenance	Per manufacture's guidelines	Per manufacture's guidelines	Per manufacture's guidelines	Per manufacture's guidelines	District 7 filters only
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the	None

MEDIA FILTERS – SAND
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				burrows to prevent seepage, erosion and leakage. • Where voles are present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent seepage, erosion and leakage.	
Inspect for possible endangered species, threatened species and species of special concern within the BMP maintenance	Presence of bare ground, sparse ground cover, woodpiles, rocks, logs, rocks, evidence of burrowing animal damage or	Visual observation	Weekly, during the wet season	• On March 1 place nylon/plastic mesh with mylar strips over the filter sand area to prevent bird nesting. Remove the mesh and	Vulnerable sites: I-5/La Costa PR I-5/SR-78 PR

MEDIA FILTERS – SAND
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
perimeter.	evidence of ponding, emergence of wetland or woody vegetation, shrubs, dwarf plantain,			mylar in September each year. If nesting occurs in the BMP, immediately notify the engineer. • Remove debris, woodpiles etc. within 10 days. • On Mar 1, deploy stakes with mylar strips and place scarecrow device around BMP. If burrows are found between Mar 1 and Aug 30, a biologist needs to confirm that no birds are nesting in the burrows before sealing the hole. • Remove woody vegetation, shrubs, dwarf plantain, pickleweed and woody wetland vegetation[4] outside the wetted	

MEDIA FILTERS – SAND
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				pond area within 10 days.	
Inspect for standing water	Water accumulation in any structure or other location within the filter	Standing water in any structure or other location within the filter	Annually, May 1	Where gravity draining is possible, drain the standing water	None
General Maintenance Inspection	Inlet structures, outlet structures, filter fabric or other features damaged, emergence of vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 30 working days, take corrective action. Consult engineer if immediate solution is not evident.	None

MULTI-CHAMBER TREATMENT TRAINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Maximum filter drain time of 72 hrs for design and smaller storms	Drain time greater than 72 hours	Visual observation	After each target storm	If filter surface has sediment, remove and replace filter fabric blanket. Target completion period within 10 days. If problem persists, consult with engineer, the media may need to be replaced.	None
Inspection for trash/ debris at inlet and outlet structures and the MCTT	Trash/debris present	Visual observation	Weekly during the wet season and monthly during the dry season	Remove and dispose of trash and debris. Target completion period within 1 day during wet season, 10 days during dry season..	None
Inspection for sediment accumulation	Maximum of 6-inches in main settling chamber Maximum of 2-feet grit chamber, or Any parameter concentration (See Vol II) exceeds 50% of Title 22 TTLC. Or, if	Measure with appropriate device Characterize sediment by sampling according to OMM plan Vol II and send samples to	Measure sediment depth monthly during period of extended wet weather. Characterize sediment annually on May 1	Remove sediment within 10 days during wet season, characterize sediment and dispose of the sediment within 30 days If sediment characterization exceeds maintenance indicator, remove and	None

MULTI-CHAMBER TREATMENT TRAINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
	the parameter concentration falls between 10X STLC and TTLC, is less than 50% TTLC, and the WET results exceed 50 % of the STLC value.	lab		dispose of sediment.	
Inspect for possible vector harborage	Standing water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment. Renew vector control briquettes every 3 months.	None
Inspect for standing water	Water accumulation in any structure or other location within the device	Standing water in any structure or other location within the device	Annually, May 1	Where gravity draining is possible, drain the standing water	None
Replace filter media every 3 years per designer's specification	Operation greater than 3 years	Not applicable	Every 3 years	Remove and replace filter media	None
Renew sorbent pillows in main settling chamber every year per designer's specification	Not applicable	Not applicable	Annually at the end of the wet season	Renew sorbent pillows	None
Inspect pumps for	Pump does not operate	Energize pump to see	September or after one	Make assessment to	None

MULTI-CHAMBER TREATMENT TRAINS
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
proper functioning		if water is discharged	month of inactivity during the wet season	determine if problem is electrical or mechanical. Take appropriate action. Replace pump if needed. Target completion time is 10 days (keep one pump in storage as back-up)	
Inspect pumps for serviceability and periodic maintenance	Per manufacture's guidelines	Per manufacture's guidelines	Per manufacture's guidelines	Per manufacture's guidelines	None
General Maintenance Inspection	Inlet structures, outlet structures, filter fabric, settling tubes or other features damaged, emergence of vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 30 working days, take corrective action. Consult engineer if immediate solution is not evident.	None

OIL-WATER SEPARATOR

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for sediment accumulation in the pre-separator and separator chamber	Greater than 12-inches	Measure with appropriate device	Monthly	Within 10 working days remove the accumulated material with a suction hose from a vacuum vehicle or portable pump.	None
Inspect for oil accumulation in oil chamber	Oil depth is not more than 50 percent of chamber volume	Gauge the level of oil/water with a wooden gauge stick	Monthly	Within 10 working days remove and dispose of oil and grease.	None
Inspect coalescer for debris and gummy deposits	Debris or gummy deposits present	Visual observation	Two times per year – at the beginning and end of each wet season (Sep 1 and April 15)	Wash the coalescer with a high-pressure hot water.	None
Inspect water level in tank	Less than full	Visual observation	Monthly	Fill with water within 1 day	None
Inspect for general mechanical integrity	Per manufacture's guidelines	Per manufacture's guidelines	Monthly during the wet season and before the beginning of the wet season	Operate each mechanical component to ensure proper operation. Repair as needed	None

WET BASIN
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
24 hour draw down measured between the spillway rim and invert of the WQ basin inlet pipe	Drawdown greater than 25 hours or water is flowing over spillway.	Evaluate drain time from inlet and outlet flow data loggers or observe 25 hours after target storm. Observation of water flowing over spillway	After each target storm event	If >25-hours: Open gate to discharge water to permanent pool elevation, clear outlet of debris. Consult engineer if needed. If water is spilling over spillway open canal gate until water level is at permanent pool elevation.	None
Inspect for burrowing rodent activity	Ground squirrel holes, vole or gopher mounds	Visual observation	Monthly, for rodent activity with abatement immediately if the activity affects the performance of the BMP otherwise abate annually in September	• Where ground squirrels are active, firmly backfill the burrows to prevent seepage, erosion and leakage. • Where ground squirrels are not active, confirm that no owl activity is present (a biologist may be needed if uncertain). Firmly backfill the	None

WET BASIN
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				burrows to prevent seepage, erosion and leakage. • Where gophers are present, trap the gophers and level the mounds and firmly backfill the burrows to prevent seepage, erosion and leakage. • Where voles are present, firmly backfill the burrows to prevent seepage, erosion and leakage • If ground squirrel abatement is needed conduct a one time poisoning program. After the appropriate amount of time has passed (determined by the pesticide applicator), firmly backfill the burrows to prevent	

WET BASIN
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				seepage, erosion and leakage.	
Inspect for possible endangered species, threatened species and species of special concern within the BMP maintenance perimeter.	Evidence of emergence of woody vegetation, shrubs, dwarf plantain, or wetland vegetation, burrowing animal damage. Presence of logs, woodpiles, rocks, or large debris.	Visual observation	Weekly, during the wet season	• Remove woody vegetation, shrubs, dwarf plantain, pickleweed and woody wetland vegetation[4] above the maintenance road area within 10 days. • Remove debris, woodpiles etc. within 10 days. • On Mar 1, deploy stakes with mylar strips and place scarecrow device around BMP. If burrows are found between Mar 1 and Aug 30, a biologist needs to confirm that no birds are nesting in the burrows before sealing the hole. Remove floating	None

WET BASIN
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
				debris and dead and floating vegetation mats within 10 days. •Maintain wetland vegetation only between August and February	
Inspect for standing water	Water accumulation in any structure	Standing water in any structure	Annually, May 1	Where gravity draining is possible, drain the standing water	None
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, graffiti or vandalism, fence damage, etc.	Visual observation	Monthly	Within 10 working days, take corrective action. Consult engineers is immediate solution is not evident.	None
Inspect zone of periodic inundation vegetation	•Wetland plant density in the zone of periodic inundation is maintained at the "as constructed" density, per the attached exhibit	Visual observation/estimate	Annually, approx. May 1	By Nov 1 each year: • Restore to "as constructed" plant density	None

WET BASIN
Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for sediment accumulation in forebay and main pond	More than 2 inches in the forebay and 4 inches in the main pond, or	Measure with appropriate device	Monthly	Remove and dispose of sediment. Target completion period within 30 days. If vegetation coverage drops below 30 percent during maintenance operation, replant vegetation on November 1 to restore to 30 percent coverage	La Costa site only
	Any parameter concentration (See Vol II) exceeds 50% of Title 22 TTLC. Or, if the parameter concentration falls between 10X STLC and TTLC, is less than 50% TTLC, and the WET results exceed 50 % of the STLC value.	Sample according to OMM plan Vol II and send samples to lab	May 1 each year	If sediment characterization exceeds maintenance indicator, remove and dispose of sediment. Regrade and revegetate. If vegetation coverage drops below 30 percent during maintenance operation, replant vegetation on November 1 to restore to 30 percent coverage	

CONTINUOUS DEFLECTIVE SEPARATION (CDS) UNITS

Preventive Maintenance and Routine Inspections

DESIGN CRITERIA, ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE SPECIFIC REQUIREMENTS
Inspect for accumulation of trash and debris	Unit 85 percent full	Visual observation	Monthly during the wet season	Empty unit when the it is 85 percent full or annually in May, effect cleaning within 30 days	
Inspect for vector harborage	Standing water for more than 72 hours	Visual observation	Monthly and 72 hours after target storm event	Immediately notify VCD for vector abatement assessment.	None
Inspect the screen for damage and to ensure that it is properly fastened.	Screen becomes clogged, damaged or loose	Visual observation	Annually between September 15 and October 1)	Brush or high pressure wash the screen	None
Inspection for structural integrity	Holes in screen, large debris, damage to housing or weir box	Visual observation	Monthly or prior to a target storm during the wet season, and annually in May	Immediately consult with engineer and manufacturer's representative to develop a course of action, effect repairs within 10 working days	None

Notes for all BMPs:

1. Design storm event is a storm that is a one year 24 hour recurrence frequency.
2. A target storm event is a storm with a predicted greater than 0.25 inches of rainfall or 0.1 inches for drain inlet inserts. Storm events should be separated by at least 72 hours of dry weather from the previous storm event.
3. The Drain Inlet Inserts will be changed according to the schedule presented in the OMM Plan Volume II during the study period. After the study period, they will be serviced according to this document.
4. Woody wetland vegetation consists of: willows *(Salix spp)*, mule fat *(baccharis salicifolia)*, cottonwood *(populus fremontii)*, western sycamore *(plantanus racemosa)* and emergent large stature monocots including the genera *Cyperus, Juncus, Scirpus, and Typha)*

This Maintenance Indicator Document has been developed using site-specific information gathered by specialists trained in the identification of threatened and endangered species and their habitat. Information contained in this document includes guidance for inspection for possible threatened and endangered species harborage. Further, some of the maintenance recommendations are based on the requirements of specific plant species used in this Pilot Program. The recommendations provided in this document must be reassessed with respect to species and plant materials if the guidance contained herein is to be used for a separate project in another area.

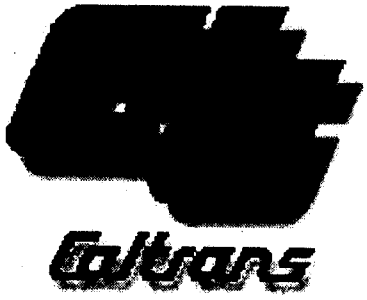
APPENDIX B: OMM DATA SAMPLE INFORMATION REPORT

DRAFT

REPORT OUTLINE
WITH SAMPLE TABLES/GRAPHS

Caltrans BMP Retrofit Pilot Program

CALIFORNIA DEPARTMENT OF TRANSPORTATION



DISTRICT 7/11

Report Outline

1.0 STORMWATER DATA

- 1.1 OBJECTIVE
- 1.2 BMP DESCRIPTION
- 1.3 HYDROLOGY
  - 1.3.1 Precipitation During the Water Year (Indicator sites and BMPs)
  - 1.3.2 Precipitation During Monitored Events
  - 1.3.3 Stormwater Runoff During Monitored Events
- 1.4 WATER QUALITY RESULTS
  - 1.4.1 Assessment of Quality Assurance/Quality Control Results
  - 1.4.2 Trace Metals and Hardness
  - 1.4.3 Conventional and Other Contaminants
  - 1.4.4 Solids Material Sampling Results
- 1.5 PRELIMINARY BMP PERFORMANCE EVALUATIONS
- 1.6 BASELINE SOIL SAMPLING AT THE INFILTRATION BASIN

2.0 BMP OPERATIONS

- 2.1 INTRODUCTION AND METHODS
- 2.2 SUMMARY OF EMPIRICAL OBSERVATIONS AND BMP OPERATIONS
- 2.3 ANALYSIS OF EMPIRICAL DATA
  - 2.3.1 Criteria for Analysis and Evaluation of BMP Effectiveness
  - 2.3.2 Maintenance Frequency vs. BMP Performance
  - 2.3.3 Assessment of Maintenance Frequency vs. BMP Performance

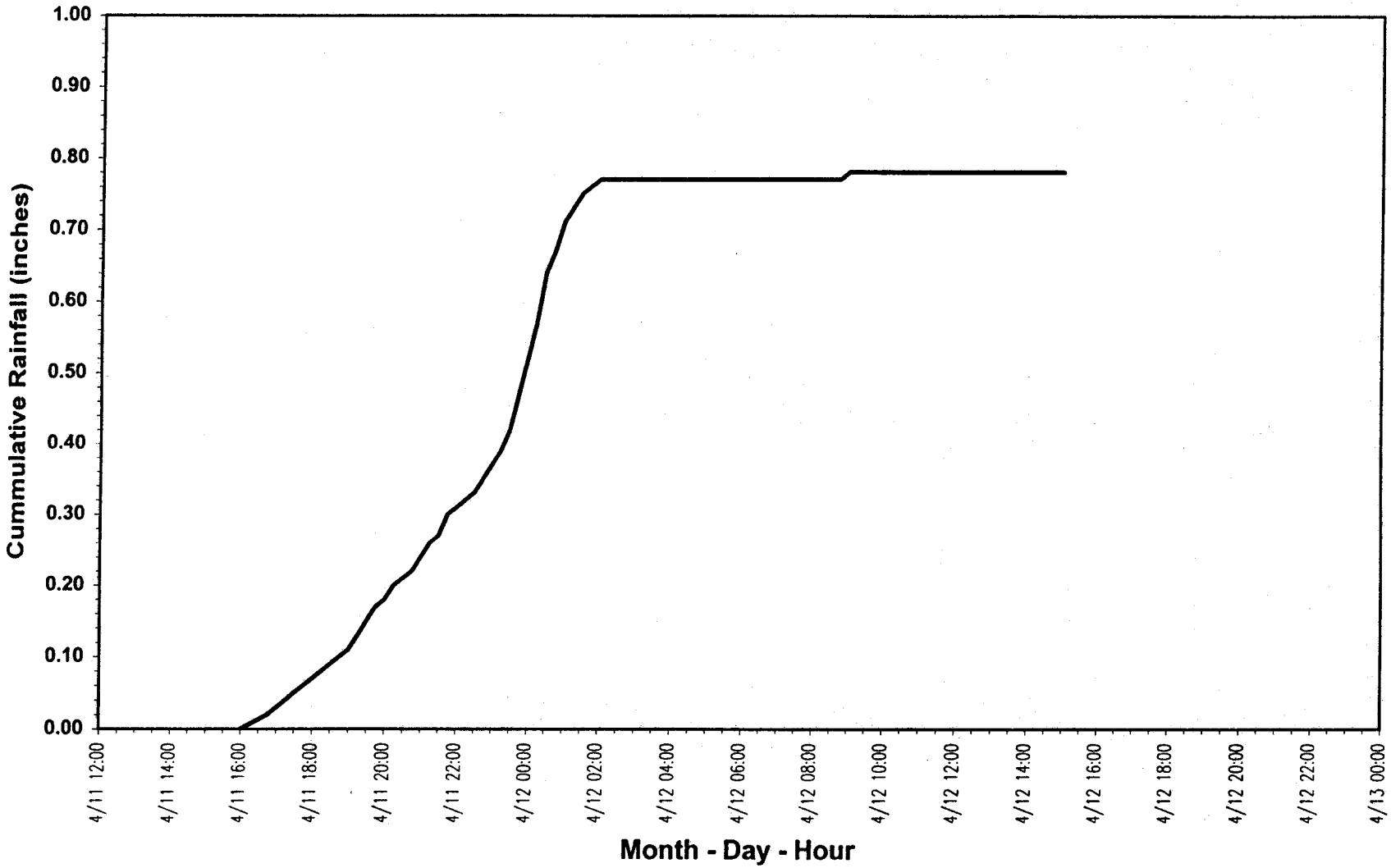
3.0 BMP AND SITE MAINTENANCE

- 3.1 INTRODUCTION AND METHODS
  - 3.1.1 Inspections
  - 3.1.2 Maintenance
- 3.2 SUMMARY OF INSPECTION AND MAINTENANCE ACTIVITIES
  - 3.2.1 BMP Type
    - 3.2.1.1 Site 1
    - 3.2.1.2 Site 2
    - 3.2.1.3 Site 3
  - 3.2.2 BMP Type
    - 3.2.2.1 Site 1
    - 3.2.2.2 Site 2
    - 3.2.2.3 Site 3

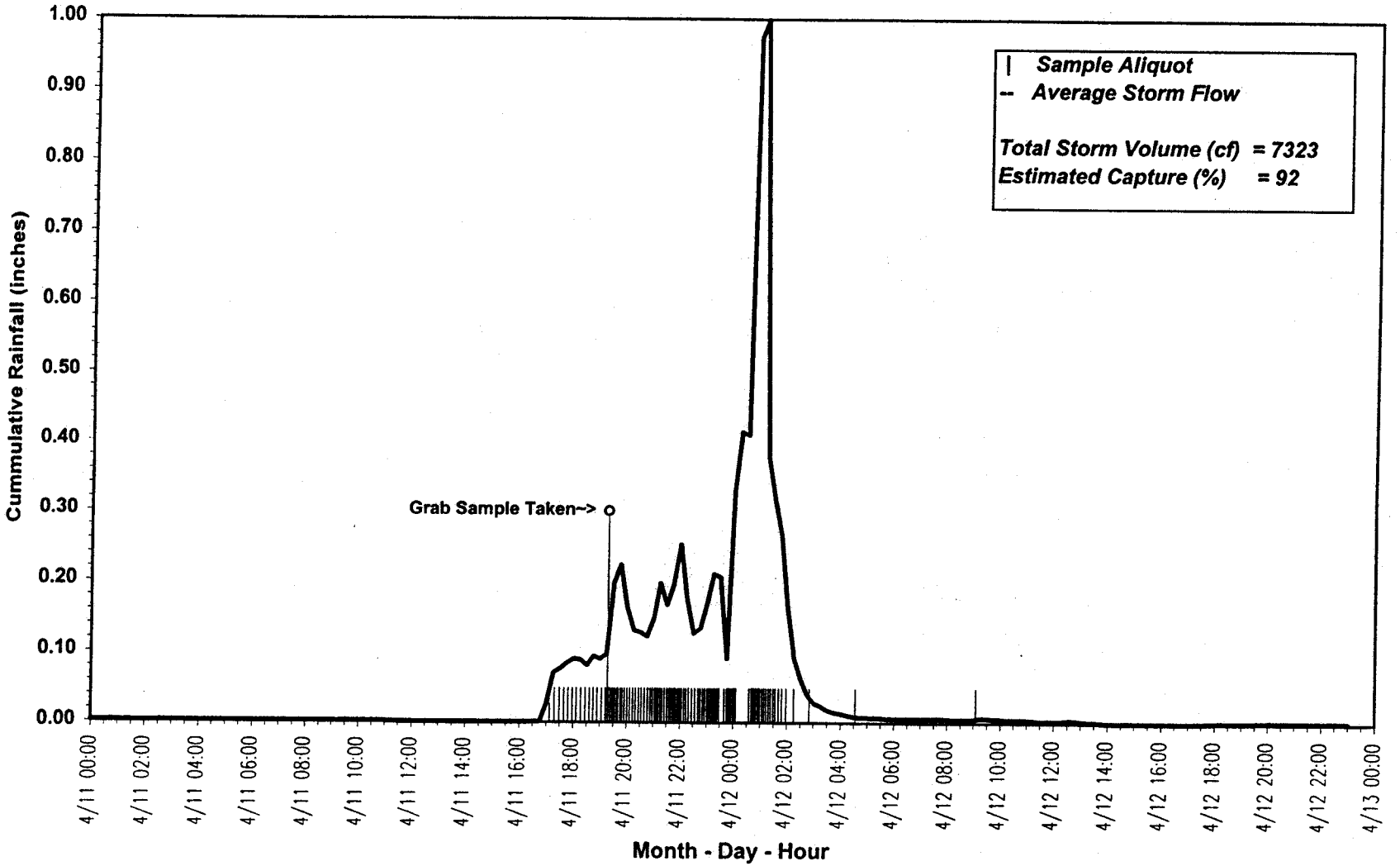
4.0 DESIGN AND CONSTRUCTION EVALUATION

5.0 COST SUMMARY

Cumulative Rainfall for (BMP or Area)

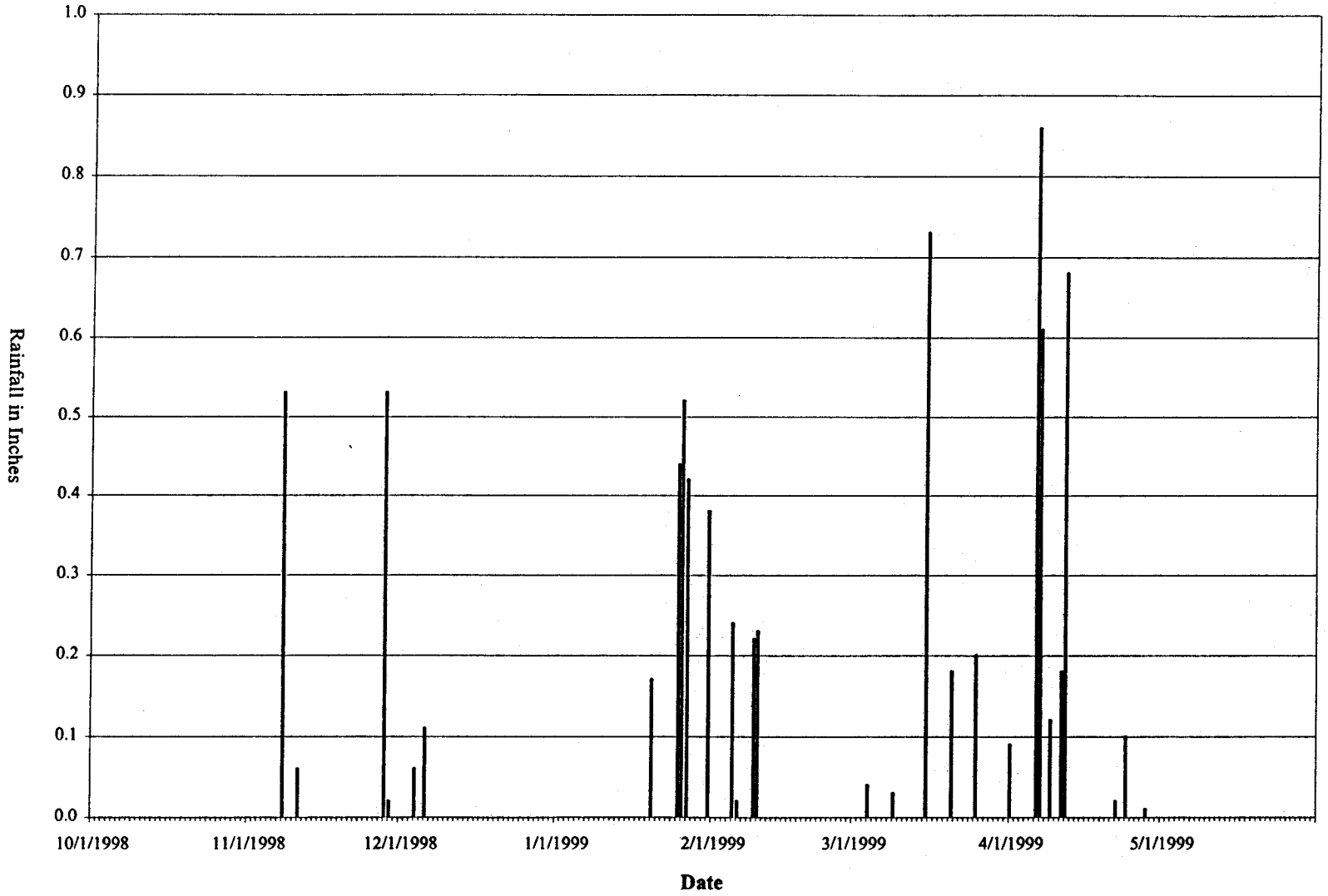


Hydrograph for (bmp site name) on (date)



Sample Precip Graph

Daily Precipitation Totals for (BMP Site Name)



EXTENDED DETENTION BASIN GENERAL SUMMARY OF ACTIVITIES
CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

Location	Site ID	Date	Activity
I-5/I-605	74101	03/10/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	03/15/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	03/15/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	03/20/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	03/23/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	03/25/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	03/25/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/06/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/06/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/07/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/11/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/14/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	04/15/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	04/15/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	05/05/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	05/18/1999	FORM D: Monitoring Equipment Inspection Checklist
I-5/I-605	74101	05/18/1999	FORM D: Monitoring Equipment Inspection Checklist
I-5/I-605	74101	06/01/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	06/08/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	06/09/1999	FORM E: BMP Site Maintenance Activity Checklist
I-5/I-605	74101	06/09/1999	FORM H: Empirical Observations Field Data Log Sheet
I-5/I-605	74101	06/30/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	07/14/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	08/04/1999	FORM C: BMP Site Inspection Checklist
I-5/I-605	74101	08/04/1999	FORM E: BMP Site Maintenance Activity Checklist
I-605/SR-91 Intersection	74102	03/10/1999	FORM C: BMP Site Inspection Checklist
I-605/SR-91 Intersection	74102	03/15/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	03/20/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	03/23/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	03/25/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	04/06/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	04/06/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	04/07/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	04/11/1999	FORM H: Empirical Observations Field Data Log Sheet
I-605/SR-91 Intersection	74102	05/05/1999	FORM C: BMP Site Inspection Checklist
I-605/SR-91 Intersection	74102	05/18/1999	FORM D: Monitoring Equipment Inspection Checklist
I-605/SR-91 Intersection	74102	05/18/1999	FORM D: Monitoring Equipment Inspection Checklist
I-605/SR-91 Intersection	74102	06/01/1999	FORM C: BMP Site Inspection Checklist

OIL/WATER SEPARATOR INSPECTIONS
CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

Date	Category	Question	Observation	Comment
Site ID: 74201 Location: Alameda MS				
06/02/1999				
	Animal Concerns	Comments		
	Sediment/Erosion Control	Sediment depth in tank:		
	Overall	Dates for maintenance to be completed by:		Changed 12 V battery for cell phone 6-2-99 (12.31 FLK).
	Overall	Condition of facility:	Acceptable	
	Overall	Other concerns affecting operation:		
	Aesthetic Concerns	Other general aesthetic concerns:		
	Aesthetic Concerns	Graffiti?	No	
	Aesthetic Concerns	Debris (non-trash)?	No	
	Animal Concerns	Is there evidence of mosquito or roach activity within the OWS chambers?		
	Animal Concerns	Is there evidence of small animals (droppings, trails, gnawing marks, or stained rub marks)?		
	Structural/Mechanical	Other general maintenance concerns/comments		
	Vegetation	Condition of landscaping		
	Sediment/Erosion Control	Sediment type and chamber location:	None	
	Aesthetic Concerns	Trash?	No	
	Sediment/Erosion Control	Comments:		
	Structural/Mechanical	Locks:	OK	
	Vegetation	Comments	N/A	
	Structural/Mechanical	Are chambers clear of significant oil/grease buildup (pipes, plates, walls)?	Yes	
	Structural/Mechanical	Are coalescing screens clear of blockages or clogs?	Yes	
	Structural/Mechanical	Is corrosion present?	No	
	Structural/Mechanical	Evidence of concrete scour, spalling, or cracking of structural parts?	No	
	Structural/Mechanical	Fences:	OK	
	Sediment/Erosion Control	Any drainage problems?	No	
07/14/1999				
	Structural/Mechanical	Is corrosion present?	No	
	Structural/Mechanical	Evidence of concrete scour, spalling, or cracking of structural parts?	No	
	Sediment/Erosion Control	Sediment depth in tank:		
	Sediment/Erosion Control	Sediment type and chamber location:		
	Sediment/Erosion Control	Any drainage problems?	No	Need camera on site
	Sediment/Erosion Control	Comments:	* Other water on site	
	Vegetation	Condition of landscaping		
	Vegetation	Comments		

Date	Category	Question	Observation	Comment
	Structural/Mechanical	Are chambers clear of significant oil/grease buildup (pipes, plates, walls)?	Yes	
	Aesthetic Concerns	Other general aesthetic concerns:		
	Structural/Mechanical	Are coalescing screens clear of blockages or clogs?	Yes	
	Overall	Dates for maintenance to be completed by:		
	Overall	Other concerns affecting operation:		
	Aesthetic Concerns	Graffiti?	No	
	Aesthetic Concerns	Trash?	No	
	Aesthetic Concerns	Debris (non-trash)?	No	
	Animal Concerns	Is there evidence of mosquito or roach activity within the OWS chambers?	No	
	Animal Concerns	Is there evidence of small animals (droppings, trails, gnawing marks, or stained rub marks)?	No	
	Structural/Mechanical	Other general maintenance concerns/comments		
	Structural/Mechanical	Locks:	OK	
	Animal Concerns	Comments		
	Overall	Condition of facility:	Acceptable	* A 3' x 3' puddle of water prox 18' outside garage area (2' away from grate).
	Structural/Mechanical	Fences:	OK	
08/10/1999				
	Overall	Condition of facility:	Acceptable	
	Animal Concerns	Comments		
	Aesthetic Concerns	Debris (non-trash)?	No	
	Aesthetic Concerns	Trash?	No	
	Aesthetic Concerns	Graffiti?	No	
	Overall	Other concerns affecting operation:	Note - Water from emergency shower running to drain grate in parking lot	
	Animal Concerns	Is there evidence of mosquito or roach activity within the OWS chambers?	No	
	Sediment/Erosion Control	Sediment type and chamber location:		
	Aesthetic Concerns	Other general aesthetic concerns:		
	Animal Concerns	Is there evidence of small animals (droppings, trails, gnawing marks, or stained rub marks)?	No	
	Structural/Mechanical	Other general maintenance concerns/comments		
	Structural/Mechanical	Locks:	OK	
	Structural/Mechanical	Fences:	OK	
	Structural/Mechanical	Evidence of concrete scour, spalling, or cracking of structural parts?	No	
	Sediment/Erosion Control	Any drainage problems?	No	
	Overall	Dates for maintenance to be completed by:		
	Sediment/Erosion Control	Sediment depth in tank:		
	Sediment/Erosion Control	Comments:		

EXTENDED DETENTION BASIN MAINTENANCE

CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

Location	Site ID	Date	Maintenance Activity	Detail	Observation	Total Time (hrs)	Equipment Used	Comment
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
I-5/I-605	74101	08/04/1999	Sampling & Flow Measurement Equipment	Are the DC marine battery and connect cable present?	Yes			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

MULTI-CHAMBERED TREATMENT TRAIN EMPIRICAL OBSERVATIONS
CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

Monday, September 13, 1999

Date	Event	Category	Question	Observation	Comment
Site ID: 74206 Location: Via Verde P&R					
[redacted]					
	Purpose of visit is Routine Inspection	Treatment Medium Condition	Describe any indications that the plate media or filter medium is clogging or that hydraulic capacity is otherwise being reduced:	None observed	
	Purpose of visit is Routine Inspection	Outlet Conditions	Describe any obstructions or restrictions interfering with outflow/effluent	None observed	
	Purpose of visit is Routine Inspection	Inlet Conditions	Describe flow distribution where flow passes weir or baffle at exit of inlet chamber		
	Purpose of visit is Routine Inspection	Overall	General Comments	Everything seems to be fine at this time.	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of mosquito larvae:	Not present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in inlet chamber:	None observed	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time since end of previous storm event visit:	> 72 hours	
	Purpose of visit is Routine Inspection	Structural Condition of Facility	Comments:	None	
	Purpose of visit is Routine Inspection	Inlet Conditions	Describe any obstructions or restrictions interfering with inflow/influent	None observed	
	Purpose of visit is Routine Inspection	Hydrologic and Hydraulic Characteristics	Flow Condition Comments:	Not raining, no flow	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Present rainfall:	None	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of mosquito adults:	Not Present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in settling chamber:		
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Current time:		
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of blackfly larvae:	Not present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in filter chamber:		
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of blackfly adults:	Not Present	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time present rain event started:		

Date	Event	Category	Question	Observation	Comment
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of cockroaches:	Not present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Solids deposition and resuspension comments:		
	Purpose of visit is Routine Inspection	Hydrologic and Hydraulic Characteristics	Standing Water Comments:		
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time since end of rain event visit:		
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Meteorological characteristics comments:	Overcast +/- 66 Deg F	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of other insect (identify):	Not Present	
	Purpose of visit is Routine Inspection	Water Quality Appearance	Water quality appearance comments		
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of rats:	Not present	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of another species (mammals, birds, reptiles; identify)	Not Present	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Vector control comments		
Site ID: 74208 Location: Lakewood P&R					
06/07/1999					
	Purpose of visit is Routine Inspection	Treatment Medium Condition	Describe any indications that the plate settlers or filter medium is clogging or that hydraulic capacity is otherwise being reduced:	None observed	
	Purpose of visit is Routine Inspection	Outlet Conditions	Describe any obstructions or restrictions interfering with outflow/effluent	None	
	Purpose of visit is Routine Inspection	Overall	General Comments	Pumps are to be done on Thursday 6-10-99 according to Mark D. Vector problem shouldbe alleviated at this time.	
	Purpose of visit is Routine Inspection	Water Quality Appearance	Odor: Check all that apply and describe under comments	None	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of mosquito larvae:	Present (very numerous)	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in inlet chamber:	No trash evident	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time since end of previous storm event visit:	> 72 hours	
	Purpose of visit is Routine Inspection	Structural Condition of Facility	Comments:	None	
	Purpose of visit is Routine Inspection	Inlet Conditions	Describe any obstructions or restrictions interfering with inflow/influent	None	

Date	Event	Category	Question	Observation	Comment
	Purpose of visit is Routine Inspection	Water Quality Appearance	Floating Materials. Check all that apply and describe under comments	None	
	Purpose of visit is Routine Inspection	Hydrologic and Hydraulic Characteristics	Flow Condition Comments	Both sump pumps not working	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Present rainfall:	None	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of mosquito adults:	Present (moderate)	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in settling chamber:		
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Current time:		
	Purpose of visit is Routine Inspection	Water Quality Appearance	Oil and Grease: Check all that apply and describe under comments	None	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of blackfly larvae:	Not present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Record the type (trash or debris, oil and grease, other organics), location(s), area(s) covered, and depth(s), as applicable in filter chamber:		
	Purpose of visit is Routine Inspection	Hydrologic and Hydraulic Characteristics	Standing water conditions: Check all that apply	Standing water in settling chamber	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of blackfly adults:	Not Present	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time present rain event started:		
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of cockroaches:	Not present	
	Purpose of visit is Routine Inspection	Solids Deposition and Resuspension	Solids deposition and resuspension comments:		
	Purpose of visit is Routine Inspection	Hydrologic and Hydraulic Characteristics	Standing Water Comments:	(1) Picture taken from S.E. corner of sed. chamber looking north.	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Time present rain event ended:		
	Purpose of visit is Routine Inspection	Water Quality Appearance	Turbidity: Check all that apply and describe under comments	None	
	Purpose of visit is Routine Inspection	Meteorological Characteristics	Meteorological characteristics comments:	+ 70 Deg F Sunny	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of other insect (identify):	Not Present	
	Purpose of visit is Routine Inspection	Water Quality Appearance	Water quality appearance comments		
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of rats:	Not present	
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Record the presence and approximate number of another species (mammals, birds, reptiles; identify)	Not Present	

Date	Event	Category	Question	Observation	Comment
	Purpose of visit is Routine Inspection	Mosquitoes and Other Vectors	Vector control comments	(Mosquito larvae present at) Eff. sump sediment chamber	

Monday, September 13, 1999

INFILTRATION TRENCHES - CONSTITUENTS MONITORED

INFILTRATION TRENCHES SAMPLING RESULTS
CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

			CONVENTIONALS			TOTAL METALS			DISSOLVED METALS		
Location	Site ID	Date	pH	Specific Conductance	Hardness	Copper	Lead	Zinc	Copper	Lead	Zinc
			Groundwater	Groundwater umhos/cm	Groundwater mg/L	Groundwater ug/L	Groundwater ug/L	Groundwater ug/L	Groundwater ug/L	Groundwater ug/L	Groundwater ug/L

NOTES

1. Data presented and results are preliminary and are subject to change.
2. Results are presented simply to interpret data and for comparison purposes only.
3. Water quality samples will be taken from the vadose zone via a lysimeter. Only dissolved constituents can be monitored. Samples will be collected only two times each year, in December and February.

EXTENDED DETENTION BASIN MAINTENANCE

CALTRANS BMP PILOT STUDY
FIRST YEAR MONITORING 1998-1999

Location	Site ID	Date	Maintenance Activity	Detail	Observation	Total Time (hrs)	Equipment Used	Comment
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
I-5/I-605	74101	08/04/1999	Sampling & Flow Measurement Equipment	Are the DC marine battery and connect cable present?	Yes			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

APPENDIX C

COST SUMMARY

APPENDIX D: VECTOR BACKGROUND MONITORING REPORT

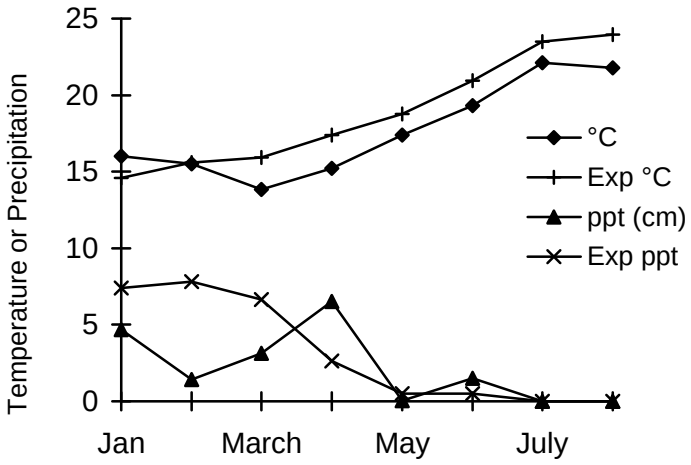
Quarterly Report on Adult Mosquito and Midge Monitoring at Caltrans District 7 and 11 Stormwater BMP Retrofit Sites: 3rd quarter 1999 (15 June - 1 Sept.)

Prepared by: William Walton, Department of Entomology, University of California, Riverside, CA 92521

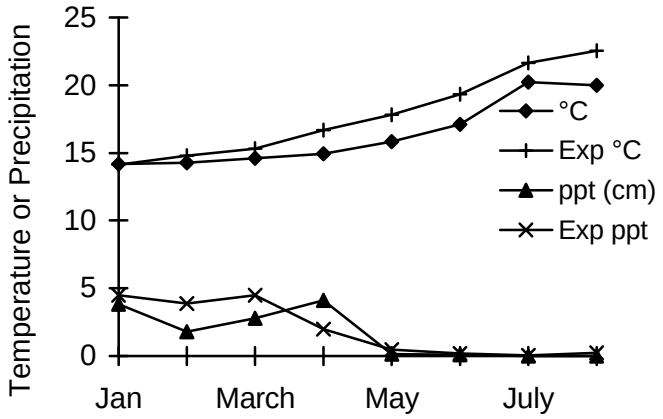
Temperature and Rainfall

The weather in southern California during the third quarter of 1999 continued to be unseasonably cool. Mean monthly air temperatures in Los Angeles from June through August were approximately 2.5 to 3.9°C cooler than normal. Rainfall in southern California is typically low during the summer; summer 1999 was not unusual. Approximately 2.5 cm of rain fell during June and a storm on 2 June accounted for nearly all of the rainfall during the month. Negligible rainfall occurred during the remainder of June and during July and August 1999.

Monthly mean air temperatures in San Diego from June through August 1999 were approximately 2.6 to 4.9°C cooler than normal. Precipitation in San Diego was below normal decreasing from 0.07 cm below normal during June to 0.03 cm below normal during August.



Air temperature (°C) and precipitation (cm) at downtown Los Angeles plotted as monthly means for 1999 and long-term averages (Exp °C or Exp ppt) compiled by the National Weather Service.



Air temperature (°C) and precipitation (cm) at Lindbergh Field, San Diego plotted as monthly means for 1999 and long-term averages (Exp °C or Exp ppt) compiled by the National Weather Service.

Host-seeking Mosquitoes

Host-seeking mosquito populations sites were at low levels, typically < 6 individuals per trap night, at most of the stormwater BMP sites throughout the late spring and summer 1999. Low numbers of host-seeking mosquitoes were collected at the "control" sites; four or fewer host-seeking females were collected per night.

Several sites had mosquito activity that was comparatively greater than the majority of BMP sites. Increased host-seeking activity was observed on one date at sites 73222 and 73225, and on 2 dates at site 74201 in District 7. The mosquitoes collected were predominantly *Culex quinquefasciatus*, a mosquito that uses standing water for developmental sites. As compared to other sites in District 11, appreciably greater host-seeking activity was observed at sites 112204 (MF) and 111101 (EDB). Nearly 30 host-seeking *Culex erythrothorax* were collected on two nights (in early July and late August) at site 112204. This species is commonly produced from ditches, swamps, wetlands, etc. containing emergent vegetation such as cattails (*Typha*) or bulrush (*Schoenoplectus* [= *Scirpus*]) and it is therefore unlikely that the BMP site was the source of these mosquitoes. Host-seeking populations at site 111101 (I-5 South & SR-56 West Interchange) were ≥ 10 individuals/trap night throughout June and July; however, *Aedes taeniorhynchus* was prevalent and was not produced from the BMP site. On two nights during July, 8-10 host-seeking *Culex quinquefasciatus* females were collected at site 112201 (MF). Prior to the first night, larvae were not observed in the BMP; however, larvae were recorded prior to the second peak in host-seeking activity.

Gravid Mosquitoes

The abundance of gravid mosquitoes at BMP sites during the third quarter was on average > 10 individuals per night at 53% of the sites in District 7 and at only 21% in

District 11. Gravid mosquito activity was particularly high at the Alameda MS (site 74201; average = 64 mosquitoes per night), was > 20 individuals per night at sites 73102, 73101, 73225, 74204 and 74104, and averaged more than 15 individuals per night at sites 74102 and 74101. Catches of gravid mosquitoes at the four Pacoima sites along the 210 freeway declined during June, peaked in late July and again in late August at 15-80 mosquitoes per night indicating the presence of productive developmental sites for *Cx. quinquefasciatus* near the prospective BMP sites at these locations. Gravid mosquito activity (14 ± 2.6 females per night) at District 7 sites was nearly twice that observed at the District 11 sites (8 ± 2.5 females per night). Catches of gravid mosquitoes at those San Diego sites (111102, 112207, 112205, 111104, 112201) which had comparably high mean gravid mosquito activity (> 8 individuals per night) peaked in early July and were relatively low for the remainder of the reporting period when drier conditions prevailed.

Midges

The abundance of midges at the stormwater BMP retrofit sites during the 3rd quarter 1999 remained low suggesting that the operational BMP sites were not producing chironomid midges in significant quantities. Except for small sporadic increases in midge abudance at two sites in District 7 (a control site near site 74203 and site 73102 in Pacoima) and one site in District 11 (112203), ≤ 5 individuals were collected per night at the majority of the BMP sites.

APPENDIX E: PROJECT CALENDAR

September 1999

Aug 1999

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Oct 1999

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16 Quarterly Status Report Due	17 Plaintiff Comments due on Revised OMM Plans	18
19	20	21	22	23	24 Response to Comments on OMM Due	25
26	27	28	29 Final OMM Plan Due	30 Status Meeting No. 6 In District 7-9 AM to 2 PM		

September

1	10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.
16	Quarterly Status Report Due
17	Plaintiff Comments due on Revised OMM Plans
24	Response to Comments on OMM Due
29	Final OMM Plan Due
30	Status Meeting No. 6 In District 7-9 AM to 2 PM

October 1999

Sep 1999

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Nov 1999

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18 Bi-weekly Report Due	19	20 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone	21	22	23
24	25	26	27	28	29	30
31						

Printed by RBF on 9/13/1999

October

18 Bi-weekly Report Due

20 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.

November 1999

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Bi-weekly Report Due	2	3 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.	4	5	6
7	8	9	10	11	12	13
14	15 Bi-weekly Report Due	16	17 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.	18	19	20
21	22	23	24	25 HOLIDAY	26 HOLIDAY	27
28	29 Bi-weekly Report Due	30				

Oct 1999

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Dec 1999

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

November

1	Bi-weekly Report Due
3	10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.
15	Bi-weekly Report Due
17	10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.
25	HOLIDAY
26	HOLIDAY
29	Bi-weekly Report Due

December 1999

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24 HOLIDAY	25
26	27	28	29	30	31 HOLIDAY	

Nov 1999

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Jan 2000

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

December

1	10:00 AM-Bi Weekly Conference Call--Marcelo Peinado, Bob Wu, Rich Horner, Chris May, Rich Graff, RBF, Jeremy Johnstone.
24	HOLIDAY
31	HOLIDAY